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MS 1113 (1998) (English): SPECIFICATION FOR DRIED CRACKERS (KERPOK KERING) FROM FRESHWATER AND MARINE FISH, CRUSTACEA AND MOLLUSCAN SHELLFISH (FIRST REVISION)



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MALAYSIAN STANDARD

MS 1113 : 1998

SPECIFICATION FOR DRIED CRACKERS (KEROPOK KERING) FROM FRESHWATER AND MARINE FISH, CRUSTACEA AND MOLLUSCAN SHELLFISH (FIRST REVISION)

ICS : 67.120

Descriptors : product definition, handling practice, minimum quality requirements, hygiene, packing and labelling, methods of test

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Committee representation

The Food and Agricultural Industry Standards Committee under whose supervision this Malaysian Standard was developed, comprises representatives from the following Government Ministries, trade, commerce and manufacturer associations, and the scientific and professional bodies.

Federal Agricultural Marketing Authority

Federation of Malaysian Consumers Association

Federation of Malaysian Manufacturers

Malaysian Agricultural Research and Development Institute

Ministry of Agriculture

Department of Agriculture

Malaysian Oil Palm Growers' Council

Rubber Research Institute of Malaysia

Universiti Putra Malaysia

Universiti Kebangsaan Malaysia

Ministry of Health

The Working Group on Marine Foods - Fresh and Processed which developed this Malaysian Standard consists of the following representatives:

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Puan Radziah Mohd. Daud (Secretary)	SIRIM Berhad (Standards Development Section)
Puan Che Rohani Awang Institute	Malaysian Agricultural Research and Development
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Cik Teoh Poh Im/Puan Tan Quie Eng from Yeo Hiap Seng (M) Bhd.	Federation of Malaysian Manufacturers
Encik Hamdan Hj. Jaafar	Institut Penyelidikan Perikanan Malaysia
Puan Norliza Aminudin/Puan Ruslaina Abas	MATRADE
Encik Mustafa Haji Ahmad/ Encik Ramli Din	Lembaga Kemajuan Ikan Malaysia
Encik Louis Lee Yoon Sin	Ministry of Health
Puan Sharifah Rejab	SIRIM Berhad (Chemical Testing Section)

FOREWORD

This Malaysian Standard developed was by the Working Group on Marine Foods - Fresh and Processed under the authority of the Food and Agricultural Industry Standards Committee.

This Malaysian Standard is the first revision of Malaysian Standard MS 1113 which was published in 1988. A number of modifications have been made in this revised edition. The format and the quality requirements of the dried crackers have been upgraded to follow the International Proposed Codex Standard on dried crackers.

In the development of this standard the following publications were consulted :

- a) MARDI Report No. 182 'Application of intermediate technology in the processing of fish keropok in Malaysia (1980)'.
- b) SIRIM Report 'Recommended specification for fish crackers (keropok)(1983)'.
- c) Information given by keropok manufacturers.
- d) Proposed Draft Codex Standard for dried crackers.

This revised Malaysian Standard supersedes the Malaysian Standard MS 1113 :1988.

Compliance with a Malaysian Standard does not of itself confer immunity from legal obligations.

**SPECIFICATION FOR DRIED CRACKERS (KEROPOK KERING)
FROM FRESHWATER AND MARINE FISH, CRUSTACEA
AND MOLLUSCAN SHELLFISH
(FIRST REVISION)**

1. Scope

1.1 This Malaysian Standard prescribes the requirements and methods of test and sampling for dried crackers (dried keropok) prepared from freshwater and marine fish, crustacea and molluscan shellfish. It does not include artificially flavoured fish, crustacean and molluscan shellfish crackers.

2. Definition

2.1 Dried keropok

This is a product made from the flesh of either freshwater or marine fish, crustacea and molluscan shellfish, starch and any other relevant ingredients to form a dough which shall then be shaped, cooked, cooled, sliced and dried. It shall not include the ready-to-eat fried keropok made from either freshwater or marine fish, crustacea and molluscan shellfish.

2.2 Freshwater and marine fish, crustacea and molluscan shellfish, shall mean freshwater and marine fish, crustacea (including prawn and shrimps) and molluscan shellfish (including squids, oysters, clams, mussels and cockles) which have never been preserved except by chilling and freezing.

3. Handling practice

3.1 Freshly caught freshwater or marine fish, crustacea and molluscan shellfish shall be preserved immediately after harvesting by chilling or icing to bring its temperature down to 0°C (32°F) as quickly as possible.

4. General quality requirements

4.1 The freshwater or marine fish, crustacea and molluscan shellfish shall have a characteristic fresh appearance, colour and odour. For characteristics of fresh fish, MS 808 'Specification for fresh fish (First revision)' shall be referred to.

4.2 The product shall display a uniform size, shape, thickness and texture.

4.3 The product shall be visibly free from bones and shall also be free from adulterants, foreign matter, visible fungal growth, and other signs of spoilage.

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4.4 The product shall comply with the general requirements prescribed in Table 1.

4.5 Additives

4.5.1 The product may contain permitted colouring substance and flavour enhancer as mentioned in the food regulations in force in the country.

Table 1. Requirements for dried crackers (dried keropok) from freshwater and marine fish, crustacea and molluscan shellfish

No.	Characteristics	Freshwater and marine fish	Crustacea and molluscan shellfish	Method of test
1.	Crude protein (N x 6.25), % w/w, min	12.0	7.0	A
2.	Moisture content, % w/w,	14.0 max	14.0 and below	B

5. Hygiene

5.1 The product shall be processed and packed under hygienic conditions in premises licensed in accordance with the public health legislations currently in force in the country.

6. Sampling

6.1 A sampling scheme as outlined in Appendix C shall be carried out.

7. Legal requirement

7.1 The product shall in all other aspects comply with the requirements of the legislations currently in force in the country.

8. Packing and labelling

8.1 The product shall be packed in a suitable material, to prevent ingress of moisture.

8.2 Each package shall be suitably labelled with the following information:

- a) Name of product from marine and freshwater fish shall be 'Dried Fish Crackers' and those from crustacean and molluscan shellfish shall depict the common name of the species, example 'Dried Prawn Crackers', 'Dried Squid Crackers' etc.
- b) List of ingredients used.

- c) Net weight.
- d) Name and address of manufacturer and packer.
- e) Country of origin.

Appendix A

Determination of crude protein

A1. Preparation of the sample

A1.1 The representative sample selected from the lot to be analysed shall be thoroughly mixed. Comminute the sample as finely as possible to obtain a homogeneous sample, care being taken that no moisture is lost during the process. Keep the material in an air-tight container in order to prevent changes in moisture content during subsequent handling. Use this material for testing.

A2. Apparatus

A2.1 Kjeldahl digestion and distillation equipment made up of the following :

- a) Digestion flask;
- b) Digestion system 20 or its equivalent;
- c) Receiving flask, 250 ml capacity;
- d) Nitrogen distillation unit.

A3. Reagents

A3.1 Catalyst, mixture of 3.5 g of potassium sulphate and 0.175 g mercuric oxide (1 tablet).

A3.2 Sulphuric acid, concentrated, about sp gr 1.84 at 20°C.

A3.3 Sulphuric acid, 0.1 N standard volumetric solution. Standardise against sodium hydroxide solution (A3.4) using methyl red as indicator (A3.8).

A3.4 Sodium hydroxide, 0.1 N standard volumetric solution.

A3.5 Sodium hydroxide, 50% w/v.

A3.6 Boric acid, 4% w/v.

A3.7 Bromocresol green - methyl red indicator solution

Dissolve 0.016 g methyl red and 0.083 g bromocresol green in 100 ml of ethanol (95% v/v).

A3.8 Methyl red indicator

Dissolve 1 g of methyl red in 200 ml of ethanol (95% v/v).

A4. Procedure

A4.1 Weigh accurately 0.5 g of sample and place it in the digestion flask. Add 1 tablet of the catalyst. Wash down any sample adhering to the neck of the flask with some water. Add 20 ml of concentrated sulphuric acid. Heat gently. When the initial frothing has ceased, heat the flask more vigorously so that the liquid boils at moderate rate. Shake the flask occasionally and heat it until a clear blue colour is obtained.

A4.2 Allow the flask to cool. Connect up the distillation apparatus. To the receiver flask add 25 ml of 4% w/v boric acid and 2 drops to 4 drops of bromocresol green-methyl red indicator. Gently add 50 ml to 60 ml of 50% w/v sodium hydroxide solution to the digest in the digesting flask. Begin distillation until all the ammonia has distilled over (at least 150 ml distillate).

A4.3 Titrate the distillate with 0.1 N sulphuric acid.

A4.4 Carry a blank determination, using the same reagents but without the sample.

A5. Calculation

Volume of sample titration = Volume of total titration (A4.3) - Volume of blank titration (A4.4).

1 ml 0.1 N sulphuric acid \equiv 0.001401 g nitrogen.

$$\text{Total nitrogen, percent by weight} = \frac{\text{weight of nitrogen, in g}}{\text{weight of sample, in g}} \times 100$$

$$\text{Total crude protein, percent by weight} \equiv \text{Total nitrogen (\%)} \times 6.25$$

Appendix B

Determination of moisture (Air - oven method)

B1. Preparation of sample

B1.1 The representative sample selected from the lot to be analysed shall be thoroughly mixed. Comminute the sample as finely as possible to obtain a homogeneous sample, care being taken that no moisture is lost during the process. Keep the material in an air-tight container in order to prevent changes in moisture content during subsequent handling. Use this material for testing.

B2. Procedure

B2.1 In a cooled and weighed dish (provided with cover) previously heated to $105 \pm 3^{\circ}\text{C}$, accurately weigh 2 g of the well-mixed sample. Uncover the dish and dry the contents at $105 \pm 2^{\circ}\text{C}$ to constant weight. Repeat the same procedure for each weighing.

B3. Calculation

$$\text{B3.1 Moisture, percent by weight} = \frac{100 (W_1 - W_2)}{W_1 - W}$$

where,

W is the weight, in grammes, of the empty dish;

W_1 is the weight, in grammes, of the dish the material before drying;

W_2 is the weight, in grammes, of the dish with the material after drying.

Appendix C

Sampling

C1. General requirements of sampling

- C1.1** Samples shall be taken in a protected place, not exposed to damp air, dust or soot.
- C1.2** The sampling instrument shall be clean and dry.
- C1.3** Precautions shall be taken to protect the sample, the material being sampled, the sampling instrument and the sample containers from adventitious contamination.
- C1.4** The sample shall be placed in clean, dry containers of such size that they are almost completely filled by the sample.
- C1.5** Each container shall be sealed air tight with a stopper or suitable closure in such a way that it could not be opened and resealed without detection. It is marked with full details of sampling, date of sampling, name of the vendor and other important particulars of the consignment.
- C1.6** Samples shall be stored in such a manner that there is no deterioration of the material.

C2. Scale of sampling

C2.1 Lot

All containers in a single consignment of the material drawn from a single batch of manufacturer shall constitute a lot. If a consignment is declared to consist of different batches of manufacture, the batches shall be grouped separately and the containers in each group shall constitute a separate lot. Samples shall be tested for each lot to ascertain conformity of the material to the requirements of this specification.

C2.2 Gross sample

The number of containers to be selected for a lot shall depend on the size of the lot and shall be in accordance with columns 1 and 2 of Table 2. The containers to be selected for sampling shall be chosen at random from the lot as agreed upon between the purchaser and the vendor.

C2.3 Test sample

Draw with an appropriate sampling instrument equal quantities of the material from each container selected (Table 2). The total quantity of the material so obtained from the different selected containers shall be well mixed and shall be at least 0.5 kg.

Table 2. Number of containers to selected for sampling

Lot size (N)	No. of containers to be selected for sampling (n)
2 to 15	2
16 to 40	3
41 to 65	4
66 to 110	5
111 to 180	6
181 to 300	7
301 to 450	8
451 to 600	9
601 to 800	10
800 and over	10 + 1 for each additional 200 units or fraction thereof over 800