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# INTERNATIONAL STANDARD



# 2451

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Cocoa beans — Specification

First edition — 1973-12-15

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UDC 633.74.004.1

Ref. No. ISO 2451-1973 (E)

**Descriptors** : agricultural products, cocoa beans, specifications.

## FOREWORD

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Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 2451 was drawn up by Technical Committee ISO/TC 34, *Agricultural food products*, and circulated to the Member Bodies in June 1971.

It has been approved by the Member Bodies of the following countries :

Belgium	Hungary	Poland
Brazil	India	Portugal
Bulgaria	Israel	Romania
Czechoslovakia	Malaysia	South Africa, Rep. of
Egypt, Arab Rep. of	Netherlands	Spain
France	New Zealand	United Kingdom

The Member Bodies of the following countries expressed disapproval of the document on technical grounds :

Austria  
Germany

# Cocoa beans — Specification

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies requirements for cocoa beans.

Recommendations relating to storage and disinfestation are given as a guide in Annexes A and B respectively.

## 2 REFERENCES

ISO/R 1114, *Cocoa beans — Cut test*.

ISO 2291, *Cocoa beans — Determination of moisture content (routine method)*.

ISO 2292, *Cocoa beans — Sampling*.

## 3 DEFINITIONS

**3.1 cocoa bean** : The seed of the cocoa tree (*Theobroma cacao* Linnaeus); commercially, and for the purpose of this International Standard, the term refers to the whole seed, which has been fermented and dried.

**3.2 dry cocoa** : A commercial term designating cocoa beans which have been evenly dried throughout and of which the moisture content corresponds to the requirements of this International Standard.

### 3.3 Defective beans

**3.3.1 mouldy bean** : A cocoa bean on the internal parts of which mould is visible to the naked eye.

**3.3.2 slaty bean** : A cocoa bean which shows a slaty colour over half or more of the surface exposed by the method described in ISO/R 1114.

**3.3.3 insect-damaged bean** : A cocoa bean the internal parts of which contain insects at any stage of development, or have been attacked by insects which have caused damage visible to the naked eye.

NOTE — For the purpose of this International Standard the term "insects" includes mites.

**3.3.4 germinated bean** : A cocoa bean the shell of which has been pierced, slit or broken by the growth of the seed germ.

**3.3.5 flat bean** : A cocoa bean of which the two cotyledons are so thin that it is not possible to obtain a cotyledon surface by cutting.

**3.3.6 smoky bean** : A cocoa bean which has a smoky smell or taste or which shows signs of contamination by smoke.

**3.3.7 broken bean** : A cocoa bean of which a fragment is missing, the missing part being equivalent to less than half the bean.

**3.3.8 fragment** : A piece of cocoa bean equal to or less than half the original bean.

**3.3.9 piece of shell** : Part of the shell without any of the kernel.

## 4 PREPARATION

Cocoa beans shall have been fermented and then dried until their moisture content no longer exceeds that specified in 5.1.6.

## 5 REQUIREMENTS

### 5.1 General requirements

#### 5.1.1 Odour and flavour

Lots of cocoa bean shall not contain smoky beans or beans with any other abnormal or foreign odour or flavour.

#### 5.1.2 Adulteration

Lots of cocoa beans shall be free from any evidence of adulteration. The term "adulteration" in this context covers alteration of the composition of graded cocoa by any means whatsoever so that the resulting mixture or combination is either not of the grade prescribed, or its quality or flavour is injuriously affected, or its bulk or mass is altered.

#### 5.1.3 Foreign bodies

Lots of cocoa beans shall be virtually free from foreign matter. The term foreign matter means any substance other than cocoa beans, broken beans, fragments, and pieces of shell.

**5.1.4 Living insects**

Lots of cocoa beans shall be reasonably free from living insects.

**5.1.5 Broken beans, fragments and pieces of shell**

Lots of cocoa beans shall be reasonably free from broken beans, fragments and pieces of shell.

**5.1.6 Moisture content**

The moisture content of lots of cocoa beans in trade outside the producing country, as determined at the first port of destination or subsequent points of delivery, shall not exceed 7,5 % (m/m).

**5.2 Grade standards**

5.2.1 Lots of cocoa beans are graded, according to the proportion of defective beans determined by the method of test specified in ISO/R 1114, into two grades as specified in the table below :

Grade	Percentage of beans		
	mouldy	slaty	insect-damaged, germinated, or flat
1	3	3	3
2	4	8	6

NOTE – The percentages are the maximum; they should be verified in relation to the quantity examined. The percentages given in the last column apply to all the defects mentioned therein, taken together.

When a bean has several defects, it shall be classified in one category only, i.e. the least favourable. The decreasing order of gravity is as follows :

- mouldy beans;
- slaty beans;
- insect damaged beans, germinated beans, flat beans.

**5.2.2 Sub-standard cocoa**

Any lot of cocoa beans which exceeds one of the limits accepted for Grade 2 shall be regarded as sub-standard and marked "SS". Sub-standard cocoa shall only be marketed under special contract.

**6 SAMPLING**

Sampling shall be carried out in accordance with the requirements of ISO 2292.

**7 METHODS OF TEST**

Testing shall be carried out in accordance with the requirements of ISO/R 1114 and ISO 2291.

**8 PACKING**

Bags shall be clean, sound, sufficiently strong and properly sewn.

Cocoa shall be shipped only in new bags.

Bags and liners, if used, shall be made of materials harmless to human food.

Ink or paint used for marking shall not be allowed to come into contact with the produce.

**9 MARKING**

Each bag of cocoa beans shall be officially sealed. The bag or seal shall show at least the following information :

- a) the producing country;
- b) the name of the product and the grade or the marks to indicate sub-standard cocoa ("SS" for English-speaking countries; "HS" for French-speaking countries).
- c) whether or not an intermediate crop<sup>1)</sup>;
- d) any other identification marks necessary in accordance with the national regulations in force.

Indication of the year of harvesting is optional.

1) Absence of a crop indication means main crop.

## ANNEX A

## STORAGE

**A.1** Consignments of cocoa beans shall be placed in warehouses constructed and used in such a way as to keep their moisture content sufficiently low, consistent with local conditions.

The beans shall be stored on gratings or deckings giving a clear space above ground of at least 7 cm for air circulation.

Measures shall be taken to prevent infestation by insects, rodents and other animal pests.

**A.2** The bags of cocoa beans shall be stacked in such a way that :

- a) individual grades and brands are separated by a

passage at least 60 cm wide, similar to that which shall be left between the bags and the walls of the warehouse;

- b) disinfestation by fumigation and/or careful spraying with suitable insecticides can be carried out if necessary;

- c) contamination by odours or flavours, or by dust from other products such as other foods, or by products such as oil, cement and tar is impossible.

**A.3** Periodically during storage and immediately before shipment the moisture content of each lot shall be checked.

## ANNEX B

## DISINFESTATION

If pesticides are used to control insects, rodents and other animals, the greatest care must be exercised in the choice and in the technique of their application to avoid incurring any risk of tainting or the addition of toxic residues to the

cocoa. Any such residues should not exceed the tolerances prescribed by the FAO/WHO Codex Committee on Pesticide Residues, the FAO/WHO Expert Committee on Pesticide Residues and by the Government of the importing country.

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