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IS 4452 (2009): Dehydrated Onion [FAD 9: Spices and Condiments]



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IS 4452 : 2009

भारतीय मानक  
निर्जलीकृत प्याज — विशिष्टि  
( पहला पुनरीक्षण )

*Indian Standard*  
DEHYDRATED ONION — SPECIFICATION  
( *First Revision* )

ICS 67.220.10

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**BUREAU OF INDIAN STANDARDS**  
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Price Group 2

## FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Spices and Condiments Sectional Committee had been approved by the Food and Agriculture Division Council.

Dehydrated vegetables are being increasingly used as they retain their culinary quality and palatability, and bring about economy in storage space and transport cost. Besides, there is optimum utilization of the product during the glut season, and saving of packaging material and tinplate.

Dehydrated onion is used extensively in overseas countries as a condiment. Efforts are also being made for export of dehydrated onions, which is being produced by several manufacturers. This standard is intended to help in the quality control of dehydrated onion.

This standard was first published in 1967. This revision is being brought about to update and align the requirements of dehydrated onion with the ISO Standard on the subject, ISO 5559 : 1995 'Dehydrated onion (*Allium cepa* Linnaeus) — Specification' and *Prevention of Food Adulteration Rules*, 1955.

Due consideration has also been given to the *Prevention of Food Adulteration Rules*, 1955 and *Standard of Weights & Measures (Packaged Commodities) Rules*, 1977. However, this standard is subject to restrictions imposed under these Rules, wherever applicable.

A scheme for labelling environment friendly products known as ECO-Mark has been introduced at the instance of the Ministry of Environment and Forests (MEF), Government of India. The ECO-Mark shall be administered by the Bureau of Indian Standards (BIS) under the *BIS Act*, 1986 as per the Resolution No. 71 dated 20 February 1991 and Resolution No. 425 dated 28 October 1992 published in the Gazette of the Government of India. For a product to be eligible for marking with the ECO-Mark it shall also carry the Standard Mark of BIS for quality besides meeting additional environment friendly (EF) requirements. The environment friendly requirements for dehydrated onion are, therefore, also included in this standard.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

# Indian Standard

## DEHYDRATED ONION — SPECIFICATION

### ( First Revision )

#### 1 SCOPE

This standard prescribes the requirements and methods of test and sampling for dehydrated onions, that is, onions from which the bulk of moisture has been removed by dehydration under controlled conditions. It applies to various commercial forms, such as kibbled onion, minced onion, onion grits, onion powder, and onion rings and slices.

#### 2 REFERENCES

The following standards contain provisions, which through reference in this text, constitute provisions of this 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.

IS No.	Title
460 (Part 2) : 1985	Specification for test sieves: Part 2 Perforated plate test sieves ( <i>third revision</i> )
1797 : 1985	Methods of test for spices and condiments ( <i>second revision</i> )
2860 : 1964	Methods of sampling and test for processed fruits and vegetables
5403 : 1999	Method for yeast and mould count of foodstuffs ( <i>first revision</i> )
5887 (Part 5) : 1976	Methods for detection of bacteria responsible for food poisoning: Part 5 Isolation, identification and enumeration of vibrio cholerae and vibrio parahaemolyticus ( <i>first revision</i> )
13145 : 1993	Spices and condiments — Methods of sampling ( <i>first revision</i> )

#### 3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

**3.1 Kibbled Onion** — Broken slices or chippings of onions consisting of pieces which pass through 3.35 mm IS Sieve [see IS 460 (Part 2)] but not more than 10 percent (by weight) of which pass through 500-micron IS Sieve.

**3.2 Minced Onion** — Product made by mincing onions and sieving after dehydration to remove grits or powder.

**3.3 Onion Grits** — Fragments passing through 2 mm IS Sieve but retained on 850-micron IS Sieve.

**3.4 Onion Powder** — Product prepared from dehydrated onions by grinding to obtain a free-flowing powder, 99 percent of which shall pass through 500-micron IS Sieve.

**3.5 Onion Rings and Slices** — Rings or half rings or quarter rings produced by dehydrating sliced onions and removing the broken pieces by sieving.

#### 4 REQUIREMENTS

##### 4.1 Preparation

The dehydrated onion shall be prepared from clean sound bulbs of suitable varieties of onion (*Allium cepa* Linn.), after proper washing, peeling, trimming and slicing. The bulk of moisture from the slices is removed by dehydration under controlled conditions, in a manner, which would ensure the effective preservation of the colour, flavour, texture and food value of onions.

##### 4.2 Description

The dehydrated onion shall have a colour characteristic of the variety processed.

**4.2.1** The material, when in the form of powder, shall be free flowing and free from agglomerates.

##### 4.3 Flavour

The dehydrated onion shall have a marked pungent flavour characteristic of the variety used. It shall be free from off flavours, foreign odour, rancidity and mustiness.

##### 4.4 Freedom from Moulds, Insects, etc

The dehydrated onion shall be free from living insects and moulds, and practically free from dead insects, insect fragments and rodent contamination visible to the eye (corrected if necessary for abnormal vision) with the aid of a suitable magnification (not exceeding  $\times 10$ ).



#### 4.5 Extraneous Matter

The total extraneous matter, including black or dark brown pieces, outer skin, outer root base, sediment or sediment attached to onion seed stems and foreign matter, such as other vegetables in dehydrated onion, shall not exceed 0.5 percent by weight when determined in accordance with the method given in 4 of IS 1797.

#### 4.6 Freedom from Preservatives, Artificial Colouring Matter and Flavouring Agents

The dehydrated onion shall be free from any preservatives, artificial colouring matter, bleaching substances or flavouring agents. However, anticaking agents listed below may be used to the maximum extent of 2 percent in onion powder only:

- a) Carbonates of calcium and magnesium;
- b) Phosphate of calcium and magnesium;
- c) Silicates of calcium, magnesium, aluminium or sodium or silicon dioxide; and
- d) Myristates, palmitates or steavate of aluminium, ammonium, calcium, potassium or sodium.

#### 4.7 Rehydration

The dehydrated onion, after steeping in water for 4 h, shall reconstitute to form a product approximating to raw, freshly peeled and cut onion of good quality. The dehydrated onions shall reconstitute to a tender crisp product, free from toughness or mustiness and having the typical flavour, colour and odour of cooked onions when 30 g of the dehydrated onion are cooked with 250 ml of boiling one percent sodium chloride solution for 15 min in a metal, preferably enamelled receptacle.

#### 4.8 Chemical Requirements

The dehydrated onions shall also comply with the requirements given in Table 1.

#### 4.9 Additional Requirements for ECO-Mark

##### 4.9.1 General Requirements

4.9.1.1 The product shall conform to the requirements of quality prescribed under 4.1 to 4.8.

4.9.1.2 The manufacturer shall produce the consent clearance as per the provisions of *Water (PCP) Act, 1974, Water (PCP) Cess Act, 1977 and Air (PCP) Act, 1981* along with the authorization, if required under *Environment (Protection) Act, 1986* and the Rules made thereunder to the Bureau of Indian Standards while applying for the ECO-Mark and the product shall also be in accordance with the *Prevention of Food Adulteration Act, 1954* and the Rules made thereunder. Additionally, FPO 1955 (Fruit Product Order) framed under *Essential Commodities Act, 1955, Standards of Weights and Measures Act, 1977* requirements wherever applicable has to be complied with.

4.9.1.3 The product/package may also display in brief the criteria based on which the product has been labelled environment friendly.

4.9.1.4 The material used for product/packing shall be recyclable or biodegradable.

4.9.1.5 The date of manufacture and date of expiry shall be declared on the product/package by the manufacturer.

4.9.1.6 The product shall be microbiologically safe when tested as per IS 5403 and IS 5887 (Part 5).

4.9.1.7 The pesticide residues, if any in the product shall not exceed the limit as prescribed in *PFA Act, 1954* and the Rules made thereunder.

4.9.1.8 The product/package or leaflet accompanying it may display instructions of proper use, storage and transport (including refrigeration temperature compliance) so as to maximize the product performance, safety and minimize wastage.

Table 1 Chemical Requirements for Dehydrated Onion

Sl No.	Characteristics	Requirements		Methods of Test, Ref to Clause of IS 1797
		Dehydrated Onion Other Than Onion Powder	Onion Powder	
(1)	(2)	(3)	(4)	(5)
i)	Moisture, percent by mass, <i>Max</i>	6.0	6.0	9
ii)	Total ash, percent by mass, <i>Max</i>	5.0	5.0	6
iii)	Acid-insoluble ash, percent by mass, <i>Max</i>	0.5	0.5	8
iv)	Crude fibre, percent by mass, <i>Max</i>	30	—	13

NOTE — When anticaking agent is present in onion, the maximum limit for acid-insoluble ash, percent by mass shall be 2.5.

#### 4.9.2 Specific Requirements

4.9.2.1 The product shall not contain any of the heavy metal contaminants in excess of the quantities prescribed in Table 2.

**Table 2 Limits for Heavy Metals**

Sl No.	Metals	Limits	Test Method, Ref to Clause of IS 2860
(1)	(2)	(3)	(4)
i)	Arsenic mg/kg, <i>Max</i>	2.0	13
ii)	Lead, mg/kg, <i>Max</i>	10.0	14
iii)	Copper, mg/kg, <i>Max</i>	30.0	15
iv)	Zinc, mg/kg, <i>Max</i>	19.0	16
v)	Tin, mg/kg, <i>Max</i>	250.0	17

### 5 PACKING

5.1 The dehydrated onion shall be packed in clean and sound containers made of material which does not affect the onion and protects it from the uptake of moisture and exit of flavour components by way of permeation.

5.1.1 The dehydrated onion may be packed as described in Annex A.

NOTE — Onion powder is an extremely hygroscopic product absorbing moisture from air at a relative humidity as below as 10 percent.

### 6 MARKING

6.1 The following particulars shall be marked or labelled on each container:

- a) Name of the material, its commercial form and trade-name or brand name, if any;
- b) Name and address of the manufacturer or packer;
- c) Batch or Code number;
- d) Date of packing;
- e) Net weight;
- f) Instruction for storage;
- g) Best before date (Month and Year to be given by the manufacturer); and
- h) Any other requirements as given under the *Standards of Weights and Measures (Packaged Commodities) Rules, 1977* and *Prevention of Food Adulteration Act, 1955* and Rules.

### 6.2 ECO-Mark

The product may also be marked with the ECO-Mark, the details of which may be obtained from the Bureau of Indian Standards.

### 7 SAMPLING

7.1 Representative samples for testing the conformity of the final product to this specification shall be drawn according to IS 13145.

### 8 METHODS OF TEST

The samples of dehydrated onion shall be tested for ascertaining conformity, of the material to the requirements of this specification by the methods of test given in IS 1797 and referred to in col 5 of Table 1.

## ANNEX A

(Clause 5.1.1)

### PACKING OF DEHYDRATED ONION

#### A-1 SMALLER PACKINGS

Quantities up to 100 g may be packed in a flat pouch of suitable size. The pouch shall be made from paper/0.02 mm aluminium foil/150-gauge polythene laminates. The filled and sealed pouch may be provided with a 2-ply corrugated sheet cover stapled on all sides except the folded one in such a manner that the enclosed pouch is held tightly with the corrugated surface. Any other suitable type of pouch may also be used.

#### A-2 LARGER PACKINGS

Quantities of 200 to 1 000 g may be packed in a fin-sealed three dimensional pouch with rectangular cross-section of suitable size. The pouch may be made in this case also from paper/0.02 mm aluminium foil/150-gauge polythene laminates. After filling sealing and proper folding of ends, the pouch may be enclosed tightly in a 2-ply corrugated sheet carton of which the outer surface may be plain. Any other suitable type of pouch may also be used.



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This Indian Standard has been developed from Doc: No. FAD 9 (1798).

### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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