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मानक

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“Step Out From the Old to the New”

IS 5453-1 (1996): Saffron, Part 1: Specification [FAD 9: Spices and Condiments]



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“Knowledge is such a treasure which cannot be stolen”



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IS 5453 ( Part 1 ) : 1996

भारतीय मानक

केसर

भाग 1 विशिष्टि

( दूसरा पुनरीक्षण )

*Indian Standard*

**SAFFRON**

**PART 1 SPECIFICATION**

*( Second Revision )*

REAFFIRMED

JAN 2004

ICS 67.220.10

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**BUREAU OF INDIAN STANDARDS**  
**MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG**  
**NEW DELHI 110002**

*July 1996*

**Price Group 2**

**AMENDMENT NO. 1 MAY 2008  
TO  
IS 5453 (PART 1) : 1996 SAFFRON**

**PART 1 SPECIFICATION**

*( Second Revision )*

*(Page 1, clause 2)* — Insert the following reference at the appropriate place:

<i>IS No.</i>	<i>Title</i>
'5887 (Part 3) : 1999/ ISO 6579 : 1993	Methods for detection of bacteria responsible for food poisoning : Part 3 General guidance on methods for the detection of salmonella ( <i>second revision</i> )'

*(Page 2, clause 5.3)* — Insert the following clause after 5.3:

**'5.4 Salmonella**

Salmonella should be absent in 25 g when determined by the method given in IS 5887 (Part 3).'

(FAD 9)

## FOREWORD

This Indian Standard (Second 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.

Saffron (*KESAR*) is obtained from flowers of various cultivars of *Crocus sativus* Linneaus. It is a natural colouring and flavouring substance mainly used in various food preparations. It is also used for preparing indigenous medicines. Saffron presently sold as selected quality and the unselected quality. Selected quality also known as *MONGRA*, is all red and consists of mainly broken stigmas of the flower. The unselected quality, generally known as *LACHCHA*, contains some yellow filaments besides the stigmas and floral wastes. At the international level saffron is graded into four categories on the basis of floral waste and extraneous matter content.

This standard was originally published in 1963 and first revised in 1980 incorporating the requirement and method of test for the colouring power of saffron. The second revision is being issued with a view to updating it on the lines of ISO 3632 (Part 1): 1993.

In preparation of this standard due consideration has been given to the *Prevention of Food Adulteration Act, 1954* and the Rules framed under it. This standard is, however, subject to the restrictions imposed under the *Prevention of Food Adulteration Act, 1954* and the Rules framed thereunder, wherever applicable.

For the purpose of deciding whether a particular requirement of the 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***SAFFRON****PART 1 SPECIFICATION***( Second Revision )***1 SCOPE**

This standard prescribes the requirements for saffron from the flowers of *Crocus sativus* Linnaeus.

NOTE — It is applicable to saffron in either of the following forms:

- a) in whole filaments as a loose, supple, elastic and hygroscopic mass of filaments, or
- b) in powder form.

**2 REFERENCES**

The following Indian Standards contain provisions which through reference in this context, constitute provision 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:

<i>IS No.</i>	<i>Title</i>
1797 : 1985	Methods of test for spices and condiments ( <i>second revision</i> )
5194 : 1969	Method for determination of nitrogen — Kjeldahl method
5453 (Part 2) : 1996	Saffron : Part 2 Methods of test
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 Saffron in Filaments**

Stigmas of *Crocus sativus* Linnaeus, dried, dark red

in colour and trumpet shaped, serrated or indented at the distal end. The length is between 20 mm and 40 mm. The stigmas may be isolated or joined in twos or threes at the end of a portion of the style which is white/yellow in colour.

**3.2 Saffron in Cut Filaments**

Stigmas of *Crocus sativus* Linnaeus with styles removed and completely detached from each other.

**3.3 Yellow Filaments**

Dried yellow stamens of the flowers of *Crocus sativus* Linnaeus.

**3.4 Floral Waste**

Yellow filaments that are unattached and separated, pollens, stamens, parts of ovaries and other parts of the flower of *Crocus sativus* Linnaeus.

**3.5 Extraneous Matter**

Leaves, stems, chaffs and other vegetative matters including mineral matter such as sand, earth and dust.

**3.6 Saffron in Powder**

Saffron obtained by crushing the filaments.

**4 GRADES**

4.1 Saffron filaments shall be of four grades, namely, Grade 1, Grade 2, Grade 3 and Grade 4. Grading shall be done on the basis of floral waste and extraneous matter contents as indicated in Table 1.

**Table 1 Classification of Saffron Filaments**  
(Clauses 4.1, 9 and 10)

Sl No.	Characteristic	Requirement				Method of Test Ref to Cl of IS 5453 (Part 2) : 1996
		Grade 1	Grade 2	Grade 3	Grade 4	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Floral waste, percent by mass, <i>Max</i>	0.5	4	7	10	6
ii)	Extraneous matter, percent by mass, <i>Max</i>	0.1	0.5	1.0	1.0	7

## 5 REQUIREMENTS

### 5.1 Flavour

Flavour shall be characteristic of saffron, slightly bitter and slightly pungent.

The product shall be free from foreign flavours.

### 5.2 Freedom from Moulds, Insects, etc

Saffron shall be free from living insects, and shall be practically free from mould growth, dead insects, insect fragments and rodent contamination, visible to the naked eye (corrected, if necessary, for abnormal vision) or using the required magnifying instrument in certain particular cases. If the magnification exceeds  $\times 10$ , this fact shall be mentioned in the test report.

### 5.3 Chemical Requirements

Saffron, in filaments or in powder form, shall comply with the requirements specified in Table 2.

Saffron, in filament or in powder form, when examined by the method specified in 13 of IS 5453 (Part 2) : 1996, shall not show the presence of pigments and/or organic matter other than those which are peculiar to saffron.

## 6 PACKING

Saffron, whether in filament or in powder form, shall be packed in watertight, sound and clean packings made of suitable material that will not affect the quality of saffron.

## 7 MARKING

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

- a) Name and address of the processor/packer;
- b) Name of the material;
- c) Trade-name or brand name, if any;
- d) Type (filament or powder);
- e) Grade;
- f) Batch or code number;
- g) Net mass;

- h) Year of harvest in case of saffron in filament and month and year of packing in case of powder;
- j) Best before (month and year); and
- k) Any other markings in accordance with the *Standards of Weights and Measures (Packaged Commodities) Rules, 1977* and *Prevention of Food Adulteration Act, 1954* and the Rules framed thereunder.

## 8 SAMPLING

8.1 Representative samples for conformity of the product to this specification shall be drawn in accordance with IS 13145 : 1993.

## 9 PREPARATION OF TEST SAMPLE

Prepare the test sample in accordance with the method specified in 4 of IS 5453 (Part 2) : 1996.

The minimum mass of the laboratory sample shall be 10 g, whether it is for whole saffron or for saffron in powder form. This is sufficient for the tests to be carried out in duplicate.

NOTE — If additional tests are desired (total nitrogen and crude fibre content), a larger sample will be required.

Carry out the tests as quickly as possible after the preparation, scrupulously following the order indicated in IS 5453(Part 2) : 1996, Table 1 or 2, depending on whether the saffron is in filament or in powder form.

## 10 TEST METHODS

An analysis shall be carried out on the saffron samples to ensure that they are in accordance with the specification of this part of the standard following the methods of physical and chemical tests referred to in 5.2, 5.3, Table 1 and Table 2.

In the case of saffron in powder form, carry out an identification test and a microscopic examination in accordance with 5 and 8 of IS 5453 (Part 2) : 1996.



**Table 2 Chemical Requirements for Saffron, in Filaments or in Powder Form**  
(Clauses 5.3, 9 and 10)

SI No.	Characteristic	Requirement		Test Method Ref to
		Saffron in Filaments	Saffron in Powder Form	
(1)	(2)	(3)	(4)	(5)
i)	Moisture and volatile matter, percent by mass, <i>Max</i>	12	10	9 of IS 5453 (Part 2) : 1996
ii)	Total ash, percent by mass, on dry basis, <i>Max</i>	8	8	10 of IS 5453 (Part 2) : 1996
iii)	Acid-insoluble ash, percent by mass on dry basis, <i>Max</i>			11 of IS 5453 (Part 2) : 1996
	a) Grade 1 and 2	1.0	1.0	
	b) Grade 3 and 4	1.5	1.5	
iv)	Solubility in cold water, percent by mass on dry basis, <i>Max</i>	65	65	11 of IS 1797 : 1985
v)	Bitterness, expressed as direct reading of the absorbance of picrocrocine at 257 nm, on dry basis, <i>Min</i>			13 of IS 5453 (Part 2) : 1996
	a) Grade 1	70	70	
	b) Grade 2	55	55	
	c) Grade 3	40	40	
	d) Grade 4	30	30	
vi)	Safranal, expressed as direct reading of the absorbance at 330 nm, on dry basis, <i>Min</i>	20	20	13 of IS 5453 (Part 2) : 1996
	<i>Max</i>	50	50	
vii)	Colouring strength, expressed as direct reading of the absorbance of crocine at 440 nm, on dry basis, <i>Min</i>			13 of IS 5453 (Part 2) : 1996
	a) Grade 1	190	190	
	b) Grade 2	150	150	
	c) Grade 3	110	110	
	d) Grade 4	80	80	
viii)	Total nitrogen, percent by mass on dry basis, <i>Max</i>	3.0	3.0	IS 5194 : 1969
ix)	Crude fibre, percent, by mass on dry basis, <i>Max</i>	6	6	13 of IS 1797 : 1985

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This Indian Standard has been developed from Doc : No. FAD 9 ( 299 ).

### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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