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IS 3576 (2010): Spices and Condiments - Turmeric, Whole and Ground [FAD 9: Spices and Condiments]



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भारतीय मानक
मिर्च एवं मसाले — हल्दी, साबुत और पिंसी — विशिष्टि
(तीसरा पुनरीक्षण)

Indian Standard

SPICES AND CONDIMENTS — TURMERIC, WHOLE
AND GROUND — SPECIFICATION
(*Third Revision*)

ICS 67.220.10

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

FOREWORD

This Indian Standard (Third 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.

Indian Standards for turmeric, whole and powder were originally published as IS 3576 : 1966 and IS 2446 : 1963 respectively and were first revised in 1984 and 1980 respectively for updating them as well as to include methods of test for curcumin content in the standard for turmeric whole and for starch and lead content in turmeric powder. Later, when these two Indian Standards came up for a review, it was considered desirable to amalgamate both the Indian Standards for ease of reference to users and the trade and publish the second revision as IS 3576 : 1994. In this third revision, the requirements have been updated to align with the standards for turmeric, whole and ground, laid down under the *Prevention of Food Adulteration Rules*, 1955 and also with the ISO Standard on the subject, ISO 5562 : 1983 'Turmeric, whole or ground (powdered) — Specification'. The categorization of turmeric, whole, into various grades has been removed and only a single specification has been prescribed for turmeric, whole, in this revision.

Turmeric (*Haldi*) is one of the commonly used spices in India. It is also used to a limited extent as a colouring matter and has an application in the pharmaceutical and cosmetic industries. While bulk of the produce is consumed in India, considerable quantities are also exported.

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

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

**SPICES AND CONDIMENTS — TURMERIC, WHOLE
AND GROUND — SPECIFICATION**

(Third Revision)

1 SCOPE

This standard prescribes the requirements and methods of test for turmeric, whole and in ground form.

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:

<i>IS No.</i>	<i>Title</i>
460 (Part 1) : 1985	Specification for test sieves: Part 1 Wire cloth test sieves (<i>third revision</i>)
1070 : 1992	Reagent grade water (<i>third revision</i>)
1797 : 1985	Methods of test for spices and condiments (<i>second revision</i>)
1909 : 1992	Indian curry powder — Specification (<i>first revision</i>)
2860 : 1964	Methods of sampling and test for processed fruits and vegetables
4706 (Part 2) : 1978	Methods of test for edible starches and starch products: Part 2 Chemical methods (<i>first revision</i>)
5887 (Part 3) : 1999/ISO	Methods for detection of bacteria responsible for food poisoning: Part 3
6579 : 1993	General guidance on methods for the detection of Salmonella (<i>second revision</i>)
10925 : 1984	Specification for turmeric oleoresin
13145 : 1993	Spices and condiments — Methods of sampling (<i>first revision</i>)
14216 : 1994	Code for hygienic conditions for spices and condiments processing units

3 DESCRIPTION

Turmeric shall be the primary (bulbs) or secondary (fingers) rhizomes of the plants of *Curcuma longa* Linn and *Curcuma domestica* Veleton. The rhizomes shall

be dry, well developed and shall have the shape and colour characteristic of the variety. The cured rhizomes may be in natural state or machine polished. No artificial colouring matter or dyes including lead chromate shall be used for colouring.

The turmeric (*Haldi*) powder shall be prepared by grinding clean and dry turmeric (*Curcuma longa* Linn and *Curcuma domestica* Veleton) rhizomes. It shall be free from any added colouring matter, preservatives and extraneous matter.

4 REQUIREMENTS**4.1 Odour and Flavour**

Turmeric, whole or ground (powdered), shall have the characteristic odour and flavour of the spice. It shall be free from mustiness or other foreign flavours.

4.2 Freedom from Moulds and Insects Infestation

Whole turmeric shall be free from living insects and moulds, and shall be practically free from dead insects, insect fragments and contamination by rodents, visible to the naked eye (corrected, if any, for abnormal vision), with such magnification as may be necessary, in any particular case. In case the magnification exceeds $\times 10$, this fact should be stated in the test report. The proportion of insect damaged matter shall not exceed 1 percent (*m/m*).

The turmeric powder shall be free from dirt, mould growth, insect infestation.

4.3 Extraneous Matter

Extraneous matter in whole turmeric includes organic matter, such as, chaff, dried leaves or any other vegetable matter as well inorganic matter, such as, stones, clay particles, dust, dirt, etc. The proportion of extraneous matter, when determined by the method specified in 4 of IS 1797, shall not exceed 2 percent (*m/m*).

Ground turmeric shall be examined by microscope. It shall not contain any morphologically extraneous.

4.4 Defective Rhizomes

These include immature, small shrivelled fingers and/or bulbs, internally damaged, hollow or porous rhizomes, rhizomes scorched due to boiling and other types of damaged rhizomes.

The proportion of defective rhizomes shall not exceed 5 percent (*m/m*).

4.5 Turmeric, whole and ground shall also comply with the requirements given in Table 1.

4.6 Fineness

The turmeric powder shall be ground to such a fineness that all the material shall pass through 300 µm IS Sieve [see IS 460 (Part 1)].

4.7 The turmeric, whole and powder shall be manufactured and packed under hygienic conditions (see IS 14216).

4.8 Pesticide residues and metallic contaminants in the product shall not exceed the limits as prescribed in the *Prevention of Food Adulteration Act, 1954* and the Rules made thereunder.

5 PACKING AND MARKING

5.1 Packing

The material shall be packed in clean, sound and dry container made of metal, glass, foodgrade polymers, wood or jute bags. The wooden boxes or jute bags shall be suitably lined with moisture proof lining which does not impart any foreign smell to the product. The container shall be free from any fungal or insect infestation and should not impart any foreign smell. Each container shall be securely closed and sealed.

5.2 Marking

Each container shall be marked with the following particulars:

- Name of the material, trade name or brand name; if any;
- Name and address of the manufacturer/packer;
- Batch or Code number;
- Net mass;
- Date of packing;
- Year of harvest;
- Best before..... (month/year); and
- Any other marking as required under the *Standards of Weights and Measures (Packaged Commodities) Rules, 1977* and the *Prevention of Food Adulteration Rules, 1955*.

6 SAMPLING

Representative samples of turmeric whether whole or ground shall be drawn and tested for conformity to this specification as prescribed in IS 13145.

7 METHODS OF TEST

The samples of turmeric shall be tested for ascertaining conformity of the material to the requirements in accordance with the relevant clauses given in col 5 and 6 of Table 1.

8 QUALITY OF REAGENTS

Unless specified otherwise, pure chemicals and distilled water (see IS 1070) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which effect the results of analysis.

Table 1 Requirements for Turmeric, Whole and Powder
(Clauses 4.5 and 7)

Sl No.	Characteristic	Requirement		Method of Test, Ref to	
		Whole	Ground	Clause of IS	Annex
(1)	(2)	(3)	(4)	(5)	(6)
i)	Moisture, percent by mass, <i>Max</i>	11.0	11.0	9 of IS 1797	—
ii)	Total ash on dry basis, percent by mass, <i>Max</i>	8.0	8.0	6 of IS 1797	—
iii)	Dilute HCl insoluble ash on dry basis, percent by mass, <i>Max</i>	—	1.5	8 of IS 1797	—
iv)	Curcumin content on dry basis, percent by mass, <i>Min</i>	2.0	2.0	—	B of IS 10925
v)	Starch on dry basis, percent by mass, <i>Max</i>	—	60.0	9 of IS 4706 (Part 2)	—
vi)	Presence of chromates	Negative	Negative	—	A of this standard
vii)	Lead, ppm, <i>Max</i>	10	10	14 of IS 2860	—
viii)	Copper, ppm, <i>Max</i>	5	5	15 of IS 2860	—
ix)	Arsenic, ppm, <i>Max</i>	0.1	0.1	12 of IS 2860	—
x)	Zinc, ppm, <i>Max</i>	25	25	16 of IS 2860	—
xi)	Cadmium, ppm, <i>Max</i>	0.1	0.1	—	A of IS 1909
xii)	Tin, ppm, <i>Max</i>	Nil	Nil	17 of IS 2860	—
xiii)	<i>Salmonella</i> (in 25 g)	Absent	Absent	IS 5887 (Part 3)	—

ANNEX A

[Table 1, Sl No. (vi), Col 6]

CHROMATE TEST**A-1 REAGENT**

A-1.1 Dilute Sulphuric Acid — 1 : 7 (v/v).

A-1.2 Diphenyl Carbazide Solution — 0.2 percent (m/v) in ethyl alcohol [95 percent (v/v)].

A-2 PROCEDURE

Ash about 2 g of the material. Dissolve the ash in 4 to 5 ml of dilute sulphuric acid in a test-tube and add 1 ml of diphenyl carbazide solution. The presence of chromate is indicated by the production of violet colour.

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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