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मानक

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Mazdoor Kisan Shakti Sangathan

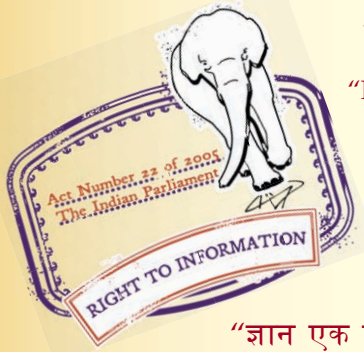
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“पुराने को छोड़ नये के तरफ”

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“Step Out From the Old to the New”

IS 3633 (2003): Black tea [FAD 6: Stimulant Foods]



“ज्ञान से एक नये भारत का निर्माण”

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“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS 3633 : 2003

भारतीय मानक
काली चाय—विशिष्टि
(दूसरा पुनरीक्षण)

Indian Standard
BLACK TEA — SPECIFICATION
(*Second Revision*)

ICS 67.140.10

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

June 2003

Price Group 4

AMENDMENT NO. 1 OCTOBER 1995
TO
IS 3633 : 1972 SPECIFICATION FOR TEA
(First Revision)

(Page 4, Foreword, clause 0.6) — Add the following clauses after 0.6 and renumber the subsequent clauses:

0.7 A scheme for labelling environment friendly products to be 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 as published in the Gazette of the Government of India vide GSR No. 85(E) dated 21 February 1991. For a product to be eligible for the ECO Mark, it shall also carry the Standard Mark of BIS for quality besides meeting additional optional environment friendly (EF) requirements. The EF requirements for tea are therefore, being included through an Amendment No. 1 to this standard.

0.8 This amendment is based on the Gazette Notification No. 678(E) dated 30 August 1994 for Labelling Edible Oils, Tea and Coffee as environment friendly products, published by the Ministry of Environment and Forests.'

(Page 4, clause 3.2.1) — Add the following clauses after 3.2.1:

3.3 Optional Requirements for ECO Mark

3.3.1 General Requirements

3.3.1.1 The product shall conform to the requirements prescribed under clauses 3.1 to 3.2.1.

3.3.1.2 The manufacturers shall produce to BIS environmental consent clearance from the concerned State Pollution Control Board as per the provisions of the *Water (Prevention and Control of Pollution) Act, 1974*; and the *Air (Prevention and Control of Pollution) Act, 1981*; along with the authorization, if required under the *Environment (Protection) Act, 1986*, while applying for ECO Mark. The product shall also conform to the requirements laid down under the prevention of *Food Adulteration Act, 1954* and the *Rules* made thereunder.

3.3.2 Specific Requirements

Amend No. 1 to IS 3633 : 1972

3.3.2.1 The product shall be free from added colouring and non-extraneous flavour; and adulterants like spent tea leaves, grit, sand and leaves of other plants. It shall also be free from rancid taste and off-flavour. The products shall not show any signs of mould growth.

3.3.2.2 The iron filings in the product shall not exceed the limit of 200 mg/kg, and their size shall not be greater than 2.0 mm when tested by the method given in Appendix H.

3.3.2.3 The lead content in this shall not be more than 6.5 mg/kg when tested by the method given in 14 of IS 6287 : 1985.

3.3.2.4 The pesticide residues in the product shall not exceed the limits given below when tested by the methods as shown against each.

Sl.No.	NAME OF PESTICIDE	TOLERANCE LIMIT mg/kg	METHOD OF TEST REF TO
i)	Dicofol	5.0	Standard under preparation
ii)	Ethion	5.0	IS 11773 : 1986

(Page 5, clause 4.1) — Add the following clause after 4.1:

'4.1.1 For ECO Mark the product shall be packed in such packages which are made from recyclable, reusable or bio-degradable materials which shall be declared by the manufacturer and may be accompanied with detailed instructions for proper use.'

(Page 5, clause 4.2) — Add the following clause after 4.2:

'4.2.1 The following additional information shall also be marked on the label for ECO Mark:

- a) List of identified critical ingredients in descending order of composition, percent by mass; and
- b) The criteria for which the product has been labelled as ECO Mark.'

(Page 5, clause 6.1) — Add the following matter at the end:

'and under 3.3.2.3'.

(Page 13, Annex G) — Add the following Appendix after Appendix G:

'APPENDIX H
(Clause 3.3.2.2)

**DETERMINATION OF IRON FILINGS AND
SIZE OF PARTICLE**

H-1 DETERMINATION OF IRON PARTICLE CONTENT

H-1.1 Procedure

Spread the entire quantity of the sample in a thin and uniform layer on a polyethylene sheet. Run a powerful magnet over the sample repeatedly till no more iron filings cling to the magnet. Collect the iron filings in a clean, dry and previously weighed petri dish. Note down and express the mass of iron filings as mg/kg.

H-1.2 Calculation

$$\text{Iron filings, mg/kg} = \frac{M_1 \times 1\,000 \times 1\,000}{M_2}$$

where

M_1 = mass in grams of iron filings, and

M_2 = mass in grams of sample taken for the test.

H-2 DETERMINATION OF SIZE OF IRON PARTICLES

H-2.1 Procedure

H-2.1.1 Calibrate an ocular scale against a known stage — micrometer scale. This is done by placing an ocular scale in the eye-piece of a microscope. Focus the stage micrometers under the desired magnification. Count the number of ocular scale covering the number of stage micrometer scale and calculate the factor.

Example: If x number of ocular number scales = y number of stage micrometer scales, then one ocular stage (factor) = y/x mm.

H-2.1.2 Place iron particles under question on a glass light and focus same magnification. Bring individual particles under the ocular scale. Count the number of ocular scale covering the two farthest points of the particle. Multiply this number by the factor in order to get the size of the iron particles.'

(FAD 23)

AMENDMENT NO. 2 MARCH 1997
TO
IS 3633 : 1972 SPECIFICATION FOR TEA
(First Revision)

[Page 4, clause 3.3.1.2, line 4 (see also Amendment No. 1)] — Insert 'Water (Prevention and Control of Pollution) Cess Act, 1977 respectively' after '1981;':

[Page 4, clause 3.3.1.2, line 7 (see also Amendment No. 1)] — Insert 'unless otherwise specified' after 'thereunder'.

[Page 4, clauses 3.3.2.1 and 3.3.2.2 (see also Amendment No. 1)] — Substitute the following for the existing:

3.3.2.1 The product shall be free from adulterants like spent tea leaves, grit, sand, leaves of other plants. The product shall also be free from rancid taste and off flavour. It shall have its characteristic flavour. It shall not show any signs of mould growth.

3.3.2.2 The product shall be free from any added colouring and no extraneous flavour shall be added, however, for exports this may be allowed as per the provisions of *Prevention of Food Adulteration Act, 1954* and the Rules made thereunder.'

[Page 4, clause 3.3.2.3, line 1 (see also Amendment No. 1)] — Delete the words 'in this'.

[Page 4, clause 3.3.2.4 (see also Amendment No. 1)] — Substitute the following for the existing:

3.3.2.4 The pesticides residues (if any), shall not exceed the limits as specified in *Prevention of Food Adulteration Act, 1954* and the Rules made thereunder, when tested by the methods given in the relevant Indian Standards Specifications.'

(Page 5, clauses 6, 6.1 and 6.2) — Substitute the following for the existing:

“6 QUALITY OF REAGENTS

Unless specified otherwise, pure chemicals shall be employed in tests and distilled water (see IS 1070 : 1992†) shall be used where the use of water as a reagent is intended.

Amend No. 2 to IS 3633 : 1972

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

(Page 5, foot-note with '†' mark) — Substitute the following for the existing:

'†Reagent grade water — Specification (*third revision*).'

[Page 13, Appendix H (*see also Amendment No. 1*)] — Delete.

(FAD 23)

FOREWORD

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

Black Tea is a popular beverage consumed all over the world. It is an important commodity in the International trade and India is one of the major Black Tea producing and exporting countries in the world.

This standard was first published in 1966 and then revised in 1972. This revision has been undertaken to incorporate the requirements of metallic contaminants, iron filings and pesticidal residues and delete the provisions of green tea for which a separate standard IS 15344 : 2003 'Green tea — Specification' is prepared on the basis of committee draft of ISO, and update its provisions. The requirements specified in this standard do not apply to teas grown in Kangra Valley.

The objects of this standard are to specify the plant source from which Black Tea is to be manufactured and to set requirements for certain chemical characteristics which, if met, are an indication that the Black Tea has been subjected to recognize good production practice. However, for commercial purpose and to save time and expenses, Black Tea is also assessed for quality by tasters, who from their previous experience can assess whether a given Black Tea would meet the requirements of the standards or not.

In the preparation of this standard, due consideration has been given to the *Prevention of Food Adulteration Act, 1954* and the Rules framed thereunder and the *Standards of Weights and Measures (Packaged Commodities) Rules, 1977*. This standard is, however, subject to the restrictions imposed under these, 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 as published in the Gazette of the Government of India vide GSR No. 85(E) dated 21 February 1991. For a product to be eligible for the ECO-Mark, it shall also carry the Standard Mark of BIS for quality besides meeting additional environment friendly (EF) requirements. In this standard, the environment friendly requirements for Black Tea have also been included, which are based on the Gazette Notification No. 678(E) dated 30 August 1994 for labelling edible oils and coffee as environment friendly products, published by the Ministry of Environment and Forests, Government of India. The environment friendly requirements for Black Tea have been included in Annex B.

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
BLACK TEA — SPECIFICATION
(Second Revision)

1 SCOPE

This standard prescribes the requirements, methods of test and sampling for Black Tea.

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>
2491 : 1998	Food hygiene — General principles — Code of practice (<i>second revision</i>)
3611 : 1975	Method of sampling for tea (<i>first revision</i>)
4541 : 1986	Glossary of tea terms (<i>first revision</i>)
6273 (Part 1) : 1973	Guide for sensory evaluation of foods : Part 1 Optimum requirements
6400 : 1993	Method for preparation of tea infusion for sensory evaluation (<i>first revision</i>)
10226 (Part 1) : 1982	Method for determination of crude fibre content : Part 1 General method
11123 : 1984	Method for determination of copper by atomic absorption spectrophotometry
11773 : 1986	Method for determination of ethion residues in food commodities, soil and water
12074 : 1987	Method for determination of lead by atomic absorption spectrophotometry
13852 : 1994	Tea — Preparation of ground sample of known dry matter content
13853 : 1994	Tea — Determination of loss in mass at 103°C
13854 : 1994	Tea — Determination of total ash
13855 : 1993	Tea — Determination of water-soluble ash and water-insoluble ash

*IS No.**Title*

13856 : 1993	Tea — Determination of alkalinity of water-soluble ash
13857 : 1993	Tea — Determination of acid-insoluble ash
13862 : 1998	Tea — Determination of water extract (<i>first revision</i>)
14437 : 1997	Method for determination of quinalphos residues in agricultural and food commodities
14629 : 1999	Method for determination of dicofol residues in agricultural and food commodities

3 TERMINOLOGY

Black Tea means the derived solely and exclusively, and produced by acceptable processes, notably fermentation and drying, from the leaves, buds and tender stems of varieties of the species *Camellia sinensis* (Linnaeus) O. Kuntze, known to be suitable for making Black Tea for consumption as a beverage.

4 REQUIREMENTS**4.1 Description**

4.1.1 Black Tea shall produce a liquor of characteristic flavour, colour and taste and shall be evaluated in accordance with the procedure prescribed in Annex A (Cup test). Black Tea shall have no taint and shall be reasonably free from extraneous matter, added colours and non-permitted flavours.

4.1.2 Pectinase enzyme to the extent of 0.2 percent can be added during processing.

4.1.3 Black Tea may contain natural flavours and natural flavouring substances, as permitted in *Prevention of Food Adulteration Act, 1954*. Black Tea used in manufacture of flavoured shall confirm to the requirement of Black Tea.

4.2 Hygiene Requirements

Black Tea shall be manufactured and packed under hygienic conditions as per IS 2491.

4.3 Iron filings in the product shall not exceed the limit of 250 mg/kg, and their size shall not be greater than 2.0 mm when tested by the method given in Annex C.

IS 3633 : 2003

4.4 Chemical Requirements

Black Tea shall also comply with the requirements specified in the Tables 1, 2 and 3 in which all the requirements are expressed on the basis of the material oven-dried at $103 \pm 2^\circ\text{C}$ by the method described in IS 13852.

5 ADDITIONAL REQUIREMENT FOR ECO-MARK

The additional requirement for ECO-Mark is given in Annex B.

6 PACKING

Black Tea shall be packed in closed, clean and dry containers made of material, which does not affect the Black Tea, or in accordance with the customary trade practices so as to allow the Black Tea to retain its freshness.

7 MARKING

7.1 The information given in 7.1.1 or 7.1.2 shall be clearly and indelibly marked on the package.

7.1.1 Retail Package

- a) Name and address of the manufacturer;
- b) Name of the product;
- c) Net mass of contents;
- d) Month and year of manufacture;
- e) Batch, code number or any other identification number;
- f) The words 'Best before' (Month and Year to be indicated);
- g) Tea board registration number if flavour is added;
- h) Declaration if flavours and flavouring substance added; and
- j) Any other requirements given under the *Prevention of Food Adulteration Rules*, or the *Standards of Weights and Measures (Packaged Commodities) Rules*, 1977.

7.1.2 Wholesale Package

- a) Name and address of the manufacturer;
- b) Name of the product;
- c) Net mass of contents;
- d) Gross mass of contents;
- e) Tare mass of contents;
- f) Month and year of manufacture;
- g) Batch, code number or any other identification number;
- h) The words 'Best before' (Month and Year to be indicated);
- j) Tea board registration number if flavour is added;
- k) Declaration if flavours and flavouring substance added; and
- m) Any other requirements given under the *Prevention of Food Adulteration Rules*, or the *Standards of Weights and Measures (Packaged Commodities) Rules*, 1977.

7.2 BIS Certification Marking

The product may also be marked with the Standard Mark.

7.2.1 The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

8 SAMPLING

The ground sample of the material shall be prepared in accordance with the procedure outlined in IS 13852 before undertaking the analysis for various chemical characteristics. The method of drawing representative samples of the material and the criteria for conformity shall be as prescribed in IS 3611.

Table 1 Requirements for Black Tea
(Clause 4.4)

SI No.	Characteristic	Requirement	Method of Test, Ref to IS No.
(1)	(2)	(3)	(4)
i)	Water extract, percent by mass, <i>Min</i>	32.0	13862
ii)	Total ash, percent by mass	4.0-8.0	13854
iii)	Water-soluble ash, of total ash, percent by mass, <i>Min</i>	45	13855
iv)	Alkalinity of water-soluble ash (as K ₂ O), percent by mass	1.0-2.2	13856
v)	Acid-insoluble ash, percent by mass, <i>Max</i>	1.0	13857
vi)	Crude fibre, percent by mass, <i>Max</i>	16.5	10226 (Part 1)

NOTES

1 No limit is specified for the moisture content of the Black Tea. If desired, the actual loss in mass at 103 ± 2°C of the sample as received may be determined and the result recorded in the test report. In such cases, the determination shall be carried out by the method described in IS 13853.

2 If alkalinity of water-soluble ash is expressed as KOH, the corresponding requirement would be 1.19-2.62, percent by mass.

Table 2 Additional Requirements—Metallic Contaminants
(Clause 4.4)

SI No.	Characteristic	Requirement	Method of Test, Ref to IS No.
(1)	(2)	(3)	(4)
i)	Lead, mg/kg, <i>Max</i>	10.0	12074
ii)	Copper, mg/kg, <i>Max</i>	150.0	11123

Table 3 Additional Requirements—Pesticide Residues
(Clause 4.4)

SI No.	Characteristic	Requirement	Method of Test, Ref to IS No.
(1)	(2)	(3)	(4)
i)	Dicofol, mg/kg, <i>Max</i>	5.0	14629
ii)	Ethion, mg/kg, <i>Max</i>	5.0	11773
iii)	Quinolphos, mg/kg, <i>Max</i>	0.01	14437

ANNEX A
(Clause 4.1.1)

CUP TEST

A-1 GENERAL CONDITIONS

A-1.1 The general conditions for sensory evaluation of teas shall be as given in IS 6273 (Part 1).

A-1.2 Cup test should be conducted by a panel consisting of 3, 5 or 7 members.

A-2 PRECAUTIONS

A-2.1 The cup test should preferably be conducted an hour after breakfast and an hour before lunch. The panellists should not smoke 30 min before the tasting session and should also refrain from using perfumes before tasting.

A-2.2 The panellists should record their reactions in the proforma immediately after evaluating an attribute.

A-2.3 In one session not more than 8 samples should be tested.

A-3 SAMPLING AND PREPARATION OF INFUSION

A-3.1 Sampling

A representative sample should be drawn from the lot.

Precaution should be taken to avoid extraneous contamination in drawing, handling and preparing samples in the laboratory.

A-3.2 Preparation of Infusion

Infusion for black or green tea shall be prepared in accordance with provisions of IS 6400. In the case of instant tea in solid form, the infusion shall be prepared as per the procedure (direction for use) given by the manufacturer.

A-3.3 Coding

Coding of samples should be done as recommended in 7 of IS 6273 (Part 1).

A-4 EVALUATION

Teas shall be evaluated for its sensory attribute in accordance with the card given in Table 4.

A-5 RESULT

Teas shall be considered having a particular defect if majority of the panel members agree to it.

Table 4 Evaluation Card for Teas
(Clause A-4)

Name _____

Date _____

Batch/Code No. _____

Time _____

Sl No.	Characteristic	Desirable	Undesirable	
			Defects	Tick (✓)
i)	Dry leaf appearance		a) Dust	
			b) Extraneous matters	
ii)	Dry leaf aroma		a) Baggy	
			b) Chesty	
			c) Stale	
iii)	Dry leaf colour		Dull	
iv)	Liquor taste		a) Dull	
			b) Baggy	
			c) Flat	
			d) Sour	
			e) Burnt	
			f) Raw	
			g) Smoky	
			h) Taint	
v)	Liquor colour		a) Dull	
			b) Pale (not in green tea)	
vi)	Infused leaf appearance		a) Dull	
			b) Black	
vii)	Infused leaf aroma		a) Burnt	
			b) Taint	

NOTES

- 1 In the case of instant tea in solid form, the evaluation shall be carried out for liquor taste and liquor colour.
- 2 For the purpose of this test, the terminology given in IS 4541 shall apply. Sample shall be assessed for the parameters mentioned. Defects shall be indicated by ticking.

ANNEX B
(Foreword and Clause 5)

ADDITIONAL REQUIREMENT FOR ECO-MARK

B-1 GENERAL REQUIREMENTS

B-1.1 The manufacturers shall produce to BIS environmental consent clearance from the concerned State Pollution Control Board as per the provisions of the *Water (Prevention and Control of Pollution) Act, 1974*; the *Air (Prevention and Control of Pollution) Act, 1981*; and the *Water (Prevention and Control of Pollution) Cess Act, 1977* along with the authorization, if required under the *Environment (Protection) Act, 1986*, while applying for ECO-Mark.

B-1.2 The product shall conform to the requirements prescribed in 4.

B-2 SPECIFIC REQUIREMENTS

B-2.1 The product shall be free from adulterants like spent leaves, grit, sand, leaves of other plants. The product shall also be free from off odour. It shall have its characteristic flavour. It shall be free from mould growth.

B-2.2 The product shall be free from any added colouring and no extraneous flavour shall be added, however, for exports this may be allowed as per the provisions of *Prevention of Food Adulteration Act, 1954* and the Rules made thereunder.

B-2.3 The iron filings in the product shall not exceed the limit of 200 mg/kg, and their size shall not be greater than 2.0 mm when tested by the method given in Annex C.

B-2.4 The lead content shall not be more than 6.5 mg/kg when tested by the method given in 14 of IS 12074.

B-2.5 The pesticide residues (if any), shall not exceed the limits as specified in the *Prevention of Food*

Adulteration Act, 1954 and Rules framed thereunder, when tested by the methods given in the relevant Indian Standard.

B-2.6 The product shall also conform to the additional packing and marking requirements given in 6 and A-3.1 respectively.

B-3 PACKING

For ECO-Mark the product shall be packed in such packages, which are made from recyclable, reusable, or biodegradable materials, which shall be declared by the manufacturer and may be accompanied with detailed instructions for proper use.

B-4 MARKING

B-4.1 ECO-Marking

The product may also be marked with ECO-Mark.

B-4.1.1 The following additional information shall also be marked on the label for ECO-Mark:

- a) List of identified critical ingredients in descending order of compositions, percent by mass, and
- b) The criteria for which the product has been labelled as ECO-Mark.

B-4.2 BIS Certification Marking

B-4.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the rules and regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

ANNEX C

(Clauses 4.3 and B-2.3)

DETERMINATION OF CONTENT AND SIZE OF IRON PARTICLES

C-1 DETERMINATION OF IRON PARTICLE CONTENT**C-1.1 Procedure**

A known amount of (25 g) tea is spread evenly on a petridish. A powerful magnet wrapped in polythene sheet is run over the sample repeatedly till no more iron filings cling to the magnet. Collect the iron filings in a clean, dry and previously weighed petridish. Note down and express the mass of iron filings as mg/kg.

C-2 CALCULATION

$$\text{Iron filings, mg/kg} = \frac{M_1 \times 1\,000}{M_2}$$

where

M_1 = mass, in g, of iron filings, and

M_2 = mass, in g, of sample taken for the test.

C-3 DETERMINATION OF SIZE OF IRON PARTICLES**C-3.1 Procedure**

C-3.1.1 Calibrate an ocular scale against a known stage—Micrometer scale. This is done by placing an ocular scale in the eye-piece of a microscope. Focus the stage micrometers under the desired magnification. Count the number of ocular scale covering the number of stage micrometer scale and calculate the factor.

Example

If x number of ocular number scales = y number of stage micrometer scales, then one ocular stage (factor) = y/x mm.

C-3.1.2 Place iron particles under question on a glass light and focus same magnification. Bring individual particles under the ocular scale. Count the number of ocular scale covering the two farthest points of the particle. Multiply this number by the factor in order to get the size of the iron particles.

Bureau of Indian Standards

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This Indian Standard has been developed from Doc: No. FAD 23 (1059).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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