
**Tea — Classification of grades by particle
size analysis**

Thé — Classification par catégories par analyse granulométrique

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 11286 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, Subcommittee SC 8, *Tea*.

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Introduction

For many years the tea trade has used various systems for the grading nomenclature of teas according to the sieves used for sorting the teas. However, a designation given in one country does not always have the same meaning in another and it was considered by some countries, in particular tea-producing countries, that a single, international method of classifying tea grades according to their particle size distributions would facilitate international trade.

The method given in this International Standard provides such a system to supplement the existing traditional systems.

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Tea — Classification of grades by particle size analysis

1 Scope

This International Standard specifies a method for the classification of grades of tea according to an analysis of their particle size.

NOTE — This method may not be suitable for blends of tea.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard given below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3310-1:1990, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth.*

3 Principle

Separation of the tea into different size fractions using a series of sieves on a shaker, followed by weighing of the tea particles retained on each sieve and calculation of the percentage by mass retained on each sieve.

4 Apparatus

Usual laboratory apparatus and, in particular, the following.

4.1 Sieve shaker, capable of a vibration rate of 3 000 per min, a vibration stroke of up to 3 mm and a vibration angle of 30°, with automatic timer¹.

4.2 Test sieves, conforming to ISO 3310-1, of nominal diameter 200 mm and of nominal aperture sizes 2 mm, 1,4 mm, 1 mm, 710 μm , 355 μm , 250 μm , 150 μm and 75 μm , together with a base pan (less than 75 μm) and a clamp.

¹ Endecotts Octagon 200 and Endecotts EFC Mark 1 are examples of suitable shakers available commercially. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by ISO of these products.

5 Sampling

Sampling is not part of the method specified in this International Standard. A recommended sampling method is given in ISO 1839².

It is important that the laboratory receive a sample which is truly representative and has not been damaged or changed during transport or storage.

6 Procedure

NOTE 1 If sufficient of the sample is available, it is recommended that the analysis be carried out in duplicate.

6.1 Arrange the test sieves (4.2) in descending order of mesh size and fit them together.

6.2 Weigh $100\text{ g} \pm 1\text{ g}$ of the laboratory sample into a 400 ml beaker. Transfer the tea quantitatively to the top sieve and fit the cover.

6.3 Place the sieves on to the sieve shaker (4.1) and secure them using the clamp provided.

Set an automatic timer to 10 min and start the shaker.

6.4 When the shaker stops, remove the test sieves and carefully separate them.

6.5 Transfer quantitatively the tea that has been retained on each sieve into a series of beakers, previously weighed to the nearest 0,01 g, and weigh to the nearest 0,01 g.

NOTE 2 It is recommended that an appropriate brush be used to aid the transfer of the tea from the test sieves to the beakers.

7 Calculation

Determine the percentage of tea retained on each test sieve and note the mesh sizes of the test sieves on which the largest amount (the peak) and the second largest amounts of tea were retained.

8 Classification

Classify the tea into one of the grades listed in table 1 in accordance with the definitions given.

² ISO 1839:1980, *Tea — Sampling*.

Table 1 — Grade designations

Grade	Definition
1	Peak in 2 mm
2	Peak in 1,4 mm and second highest peak in 2 mm
3	Peak in 1,4 mm and second highest peak in 1 mm
4	Peak in 1 mm and second highest peak in 1,4 mm
4.5	Peak in 1 mm and second highest peak 2 mm
5	Peak in 1 mm and second highest peak in 710 µm and number of sieves retaining > 25 % = 1
6	Peak in 1 mm and second highest peak in 710 µm and number of sieves retaining > 25 % = 2 or more
7	Peak in 710 µm and second highest peak in 1 mm
8	Peak in 710 µm and second highest peak in 355 µm
9	Peak in 355 µm and second highest peak in 710 µm, and number of sieves retaining > 25 % = 2 or more
9.5	Peak in 355 µm and second highest peak in 1 mm
10	Peak in 355 µm and second highest peak in 710 µm and number of sieves retaining > 25 % = 1
11	Peak in 355 µm and second highest peak in 250 µm and number of sieves retaining < 25 % = 1
12	Peak in 355 µm and second highest peak in 250 µm and number of sieves retaining < 25 % = 2 or more
12.5	Peak in 355 µm and second highest peak in 150 µm
13	Peak in 250 µm and second highest peak in 355 µm
14	Peak in 150 µm or peak in 250 µm and second highest peak in 150 µm, and number of sieves retaining < 50 % = 1
15	Peak in 150 µm or peak in 250 µm and second highest peak in 150 µm, and number of sieves retaining < 50 % = 0

NOTE — > means greater than; < means less than.

Each of the grades 1 to 6 in table 1 may be divided into subgrades A, B and C, as follows:

- A: up to 2,0 % passing 355 µm
- B: more than 2,0 % passing 355 µm
- C: more than 5,0 % passing 355 µm.

Each of the grades 7 to 10 in table 1 may be divided into subgrades A, B and C, as follows.

- A: up to 2,0 % passing 250 µm
- B: more than 2,0 % passing 250 µm
- C: more than 5,0 % passing 250 µm.

Each of the grades 11 to 15 in table 1 may be divided into subgrades A, B and C, as follows.

- A: up to 2,0 % passing 150 µm
- B: more than 2,0 % and up to 5,0 % passing 150 µm
- C: more than 5,0 % passing 150 µm.

9 Test report

The test report shall specify:

- the method in accordance with which sampling was carried out, if known;
- the method used; and
- the test result obtained.

It shall also mention all operating details not specified in this International Standard, or regarded as optional, together with details of any incidents which may have influenced the result.

The test report shall include all information necessary for the complete identification of the sample.

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