



**International
Standard**

ISO 5642

**Tea polyphenol extracts —
Definition and basic requirements**

*Extraits des polyphénols du thé — Définition et exigences
fondamentales*

**First edition
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Foreword

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This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 8, *Tea*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Tea is grown and manufactured in many countries of the world, and it is consumed in many more. As a natural antioxidant, tea polyphenols account for approximately 20 % of the dry matter of tea leaves.

A wide class of naturally occurring chemical substances known as polyphenols contain phenol units. These compounds are abundantly present in fruits, vegetables, cereals, coffee, tea, wine, etc. and have been extensively researched for their potential to improve health and prevent disease. As one type of extract, tea polyphenol extracts can be prepared from tea leaves through a green route and they are widely used in various fields, including medicine, food and cosmetics. Therefore, the green preparation and highly efficient utilization of tea polyphenol extracts not only meet the needs of people around the world for health products, but can also solve the problem of seasonal overcapacity of tea in tea producing countries or regions, improve the comprehensive economic efficiency of the tea industry and promote sustainable development of the worldwide tea industry.

The international trade of tea polyphenol extracts has been carried out for more than 20 years, but the absence of corresponding International Standards has greatly hindered the healthy development of the industry. The development of International Standards can promote international trade, and further motivate the healthy and sustainable development of the worldwide tea industry.

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Tea polyphenol extracts — Definition and basic requirements

1 Scope

This document specifies a method for the classification of grades of tea polyphenol extracts according to an analysis of their chemical characteristics.

This document specifies requirements for tea polyphenol extracts in solid form.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7513, *Instant tea in solid form — Determination of moisture content (loss in mass at 103 degrees C)*

ISO 7514, *Instant tea in solid form — Determination of total ash*

ISO 7516, *Instant tea in solid form — Sampling*

ISO 10727, *Tea and instant tea in solid form — Determination of caffeine content — Method using high-performance liquid chromatography*

ISO 14502-1, *Determination of substances characteristic of green and black tea — Part 1: Content of total polyphenols in tea — Colorimetric method using Folin-Ciocalteu reagent*

ISO 14502-2, *Determination of substances characteristic of green and black tea — Part 2: Content of catechins in green tea — Method using high-performance liquid chromatography*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/>

3.1

tea polyphenol extracts

polyphenolic extracts in solid form mainly consisting of catechins, obtained from fresh tea leaves (consisting of buds, leaves, stems and derived materials) of the species *Camellia sinensis* (Linnaeus) O. Kuntze or tea products (green tea, etc.), by acceptable processes of extraction, separation, purification, concentration and drying

4 Classification

Classify tea polyphenol extracts into one of the grades (TP-I, TP-II, TP-III) in accordance with the tea polyphenols content of the product based on the different extracting procedures.

5 Basic requirements

Tea polyphenol extracts in solid form shall conform to the requirements given in [Table 1](#).

Table 1 — Chemical requirements for tea polyphenol extracts

Characteristic	Requirements			Test method
	TP-I	TP-II	TP-III	
Total polyphenols, % mass fraction	40 min.	70 min.	80 min.	ISO 14502-1
Total catechins, % mass fraction	20 min.	40 min.	50 min.	ISO 14502-2
Caffeine, % mass fraction	15,0 max.		5,0 max.	ISO 10727
Total ash, % mass fraction	10,0 max.	5,0 max.	3,0 max.	ISO 7514
Moisture content, % mass fraction	6,0 max.			ISO 7513

6 Sampling

Sampling shall be taken in accordance with ISO 7516.

7 Test methods

The samples of tea polyphenol extracts shall have been analysed to ensure conformity with the requirements of this document using the test methods specified in [Table 1](#).