



BSI Standards Publication

Cigarettes — Determination of loss of tobacco from the ends

Part 3: Method using a vibro-bench

National foreword

This Published Document is the UK implementation of ISO/TS 3550-3:2015.

The UK participation in its preparation was entrusted to Technical Committee AW/40, Tobacco and tobacco products.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2015.

Published by BSI Standards Limited 2015

ISBN 978 0 580 86277 9

ICS 65.160

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 31 October 2015.

Amendments/corrigenda issued since publication

Date	Text affected
-------------	----------------------

TECHNICAL
SPECIFICATION

ISO/TS
3550-3

First edition
2015-10-01

**Cigarettes — Determination of loss of
tobacco from the ends —**

Part 3:
Method using a vibro-bench

*Cigarettes — Détermination de la perte de tabac par les extrémités —
Partie 3: Méthode utilisant une plateforme vibrante*



Reference number
ISO/TS 3550-3:2015(E)

© ISO 2015



COPYRIGHT PROTECTED DOCUMENT

© ISO 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Principle	1
4 Apparatus	1
5 Sampling	4
6 Procedure	4
6.1 Conditioning of test sample.....	4
6.2 Test portion.....	4
6.3 Determination.....	4
7 Calculation of specific tobacco fallout values	5
7.1 End-related tobacco fallout.....	5
7.2 Area-related tobacco fallout.....	5
8 Test report	5
Annex A (informative) Analysis for the calculation of the number of cigarettes	7
Annex B (informative) Example of counting tray	8

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#).

The committee responsible for this document is ISO/TC 126, *Tobacco and tobacco products*, Subcommittee SC 1, *Physical and dimensional tests*.

ISO 3550 consists of the following parts, under the general title *Cigarettes — Determination of loss of tobacco from the ends*:

- *Part 1: Method using a rotating cylindrical cage*
- *Part 2: Method using a rotating cubic box (sismelatophore)*
- *Part 3: Method using a vibro-bench* [Technical Specification]

Introduction

The loss of tobacco from cigarette ends, which particularly affects short strands, is a nuisance for the industry, as well as for the consumer.

From this standpoint, the greater a cigarette's resistance to loss from its end, the higher its quality.

The devices available for measuring such loss of tobacco are based on the principle of mechanically vibrating cigarettes in a cigarette-containing tester.

ISO 3550-1 and ISO 3550-2 describe two particular types of device. The first, described in ISO 3550-1, comprises a rotating cylindrical cage through which tobacco is allowed to fall into a weighing vessel. The second, described in ISO 3550-2, uses a cubic box rotating around its main diagonal axis.

A third method, based on use of a vibro-bench, vibrating along the horizontal direction is described in this part of ISO 3550.

The first system (ISO 3550-1) principally permits determination of losses undergone by the cigarette during the manufacturing and packaging processes, while the second method (ISO 3550-2) can be used to estimate tobacco losses undergone throughout the distribution network and in the smoker's pocket.

The third method (ISO/TS 3550-3) is applicable to the determination of tobacco losses that the cigarette is likely to undergo throughout its lifecycle.

The three methods were designed for different application fields by using different simulation test devices with completely distinct mechanical structures, so the physical meanings of results given with three methods are different.

The absolute mean values between the three methods are not comparable and these methods cannot be substituted for one another, although there can be some correlation between them. Therefore, these methods are not mutually exclusive.

Cigarettes — Determination of loss of tobacco from the ends —

Part 3: Method using a vibro-bench

1 Scope

This part of ISO 3550, as Technical Specification, specifies a method for the determination of loss of tobacco from cigarette ends using a vibro-bench.

This method applies to the determination of loss of tobacco from cigarette ends in manufacturing site, throughout the distribution network and also while in the smoker's pocket.

NOTE Two other methods for the determination of loss of tobacco from the ends, using a rotating cylindrical cage and a cubic rotating box (sismelatophore), are described in ISO 3550-1 and ISO 3550-2, respectively.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2971, *Cigarettes and filter rods — Determination of nominal diameter — Method using a non-contact optical measuring apparatus*

ISO 3402, *Tobacco and tobacco products — Atmosphere for conditioning and testing*

ISO 8243, *Cigarettes — Sampling*

3 Principle

A test portion of a given number of cigarettes is placed in a vibro-bench, the longitudinal vertical section of which conforms to a cosine function. During the test, the vibro-bench reciprocates along the horizontal direction and the cigarettes vibrate inside the bench. The amount of tobacco that falls out from the open end(s) of the cigarettes is determined gravimetrically.

4 Apparatus

4.1 Conditioning chamber, capable of controlling the enclosed atmosphere in accordance with the requirements of ISO 3402.

4.2 Cigarette ends loss test unit, complying with the following requirements:

- a) main part of the test unit shall consist of a vibro-bench, an actuating device, an analytical balance, control unit etc. See [Figure 1](#) for a schematic diagram of the test unit;