# SLOVENSKI STANDARD
# SIST ISO 3402:2000

**01-junij-2000**

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**Tobak in tobaļ ni proizvodi - Pogoji za kondicioniranje in preskuġanje**

Tobacco and tobacco products -- Atmosphere for conditioning and testing

Tabac et produits du tabac -- Atmosphère de conditionnement et d'essai



**Ta slovenski standard je istoveten z:** **ISO 3402:1999**

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# INTERNATIONAL STANDARD

# ISO 3402

Fourth edition
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## Tobacco and tobacco products — Atmosphere for conditioning and testing

*Tabac et produits du tabac — Atmosphère de conditionnement et d'essai*



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## Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 3402 was prepared by Technical Committee ISO/TC 126, *Tobacco and tobacco products*.

This fourth edition cancels and replaces the third edition (ISO 3402:1991), which has been editorially revised.

## Introduction

During 1988 and 1989, collaborative studies by task forces composed of members of the Cooperation Centre for Scientific Research Relative to Tobacco (CORESTA), "Smoke" and "Technology" groups, have been made on the repeatability and reproducibility of tests on tobacco and tobacco products.

These studies have resulted in the publication of CORESTA Recommended Method No. 21 (see bibliographic reference [1]).

It has since been found that, in practice, the previous tolerances on relative humidity for the test atmosphere were difficult to achieve.

# Tobacco and tobacco products — Atmosphere for conditioning and testing

## 1 Scope

This International Standard specifies the atmosphere for the conditioning and testing of samples and test pieces of tobacco and tobacco products.

It is applicable to tests on tobacco, tobacco products, and materials used in the manufacture of tobacco products for which prior conditioning is necessary. It is not applicable in the case of test methods and test conditions stipulated in other International Standards (see bibliography).

NOTE Atmospheres for conditioning and testing for other tobacco products (e.g. cigars, pipe tobacco or snuff tobacco) may differ from those specified in this International Standard. If required separate standards will be drafted.

## 2 Terms and definitions



For the purposes of this International Standard, the following terms and definitions given in ISO 558:1980 [4] apply.



**2.1**
**atmosphere**
ambient conditions defined by one or more of the following parameters:

— temperature
— relative humidity
— pressure

[ISO 558:1980, definition 2.1]

**2.2**
**conditioning atmosphere**
atmosphere in which a sample or test piece is kept before being subjected to test

NOTE 1 It is characterized by specified values for one or more of the following parameters: temperature, relative humidity and pressure, which are kept within the prescribed tolerances for a given period of time.

NOTE 2 The term "conditioning" refers to the operation as a whole designed to bring a sample or test piece, before testing, into a specified condition in relation to temperature and humidity, by keeping it for a given period of time in the conditioning atmosphere.

NOTE 3 The conditioning can be done either in the laboratory or in a special enclosure termed "the conditioning chamber", or in the test chamber.

NOTE 4 The chosen values and period of time depend on the nature of the sample or test piece to be tested.

NOTE 5 Adapted from ISO 558:1980, definition 2.2.

**2.3**
**test atmosphere**
atmosphere to which a sample or test piece is exposed throughout the test

NOTE 1 It is characterized by specified values for one or more of the following parameters: temperature, relative humidity and pressure, which are kept within the prescribed tolerances.

NOTE 2 The test may be carried out either in the laboratory or in a special chamber termed "the test chamber", or in the conditioning chamber, the choice depending on the nature of the test piece and on the test itself. For example, close control of the test atmosphere may not be necessary if the change of properties of the test piece is insignificant in the test period.

NOTE 3 Adapted from ISO 558:1980, definition 2.3.

## 3 Atmosphere

### 3.1 Conditioning atmosphere

The conditioning atmosphere shall be as follows:

— temperature (22 ± 1) °C;

— relative humidity (60 ± 3) %.

NOTE Whilst monitoring equipment might indicate the relative humidity is within the (60 ± 3) % specification, this tolerance can be comparable with the uncertainty in calibration of the equipment.

The specified tolerances listed above define the atmosphere immediately surrounding the test piece. Therefore, the atmosphere surrounding the test piece shall be maintained at a mean temperature of 22 °C and a mean relative humidity of 60 %.



### 3.2 Test atmosphere

The test atmosphere shall be the same as the conditioning atmosphere but wider tolerances are permissible as follows:



— temperature (22 ± 2) °C;

— relative humidity (60 ± 5) %.

The atmospheric pressure shall be measured and included in the test report if it is outside the range 86 kPa to 106 kPa.

## 4 Conditioning

### 4.1 Duration of conditioning

In current practice, conditioning for 48 h using a forced air flow is generally found to be sufficient for loose cigarettes. This conditioning time can be insufficient for certain samples or test pieces, for example, for packeted cigarettes in bulk and when loose cigarettes are conditioned without forced air flow. Therefore, in all cases, it should be verified that equilibrium has been properly attained (see 4.2).

It is recommended that the atmospheric relative humidity near the samples or test pieces be verified by the use of a hygrometer calibrated with traceable standards (for details see ISO 4677-1 [5]).

The air flow should be sufficient to condition loose cigarettes in the specified period, but it should be noted that excessive air flow may result in improper conditioning.

If, for any reason, test samples are to be kept for longer than 10 days before conditioning, store them in the original packaging or in airtight containers just large enough to contain the sample. If samples are to be kept for longer than 3 months, it is recommended that they are frozen and stored at, or below, –16 °C until needed.

## 4.2 Checking of equilibrium

Equilibrium shall be considered to be attained when either

a) the relative variation of the mass of the sample or test pieces is not greater than 0,2 % in 3 h, or

b) the sample or the test pieces, placed in a closed container of a volume similar to that of the sample or the test pieces, give(s) rise to a relative humidity in the container equal to that of the conditioning atmosphere.

NOTE Suitable apparatus for the measurement of relative humidity in the container is available from Rotronic and Novasina.[1)]



1) This information is given for the convenience of users of this International Standard and does not constitute an endorsement by ISO of this product. Equivalent products may be used if they can be shown to lead to the same results.