

CORESTA RECOMMENDED METHOD N° 21
ATMOSPHERE FOR CONDITIONING AND TESTING
TOBACCO AND TOBACCO PRODUCTS

(August 1991)

0. INTRODUCTION

During 1988 and 1989, Collaborative Studies by Task Forces composed of members of the CORESTA Smoke & Technology Groups have been made on the repeatability and reproducibility of tests on tobacco and tobacco products.

In order to ensure comparability between test results from different laboratories, it has proved necessary to specify a single atmosphere for conditioning and testing rather than allowing the use of one of the three possibilities provided in earlier editions of ISO 3402.

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

1. FIELD OF APPLICATION

This CORESTA Recommended Method specifies an atmosphere for conditioning and testing 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 a prior conditioning is necessary. It is not applicable in the case of test methods for which particular test conditions are laid down elsewhere, for example cigarette papers and board, which are given in ISO Recommendation R187.

2. DEFINITIONS

Note : Definitions 2.1., 2.2. and 2.3. are identical with ISO 558 which are reproduced here for completeness of this Recommended Method.

2.1. Atmosphere :

Ambient conditions defined by one or more of the parameters:

- temperature
- relative humidity
- pressure

2.2. *Conditioning atmosphere*

The atmosphere in which a sample or test piece is kept before being subjected to test. It is characterised by specified values for one or more of the parameters, temperature, relative humidity and pressure, which are kept within the prescribed tolerances for a given period of time.

Notes :

1. 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.
2. The conditioning can be done either in the laboratory or in a special enclosure termed "the conditioning chamber" or in the test chamber.
3. The chosen values and period of time depend on the nature of the sample or test piece to be tested.

2.3. *Test Atmosphere*

The atmosphere to which a sample or test piece is exposed throughout the test. It is characterised by specified values for one or more of the parameters temperature, relative humidity and pressure, which are kept within the prescribed tolerances.

Note : 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.

3. REFERENCES

ISO 558: 1980

Conditioning and testing - Standard atmospheres - Definitions.

ISO 3402: 1991

Tobacco and tobacco products - Atmosphere for conditioning and testing.

4. ATMOSPHERE

4.1. *Conditioning atmosphere*

Temperature $22\text{ °C} \pm 1\text{ °C}$

Relative Humidity $(60 \pm 2)\%$

Note : The atmospheric pressure should be within the range $96\text{ kPa} \pm 10\text{ kPa}$. The pressure shall be measured and included in any test report.

The specified ranges 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% .

4.2. *Test atmosphere*

The test atmosphere shall be the same as the conditioning atmosphere. The tolerances may, however, be wider

- Temperature $22\text{ °C} \pm 2\text{ °C}$
- Relative Humidity $(60 \pm 5)\%$

5. **CONDITIONING**

5.1. *Duration of Conditioning*

For information, in current practice a duration of 48 h is generally found to be sufficient for loose cigarettes using a forced air flow. This conditioning time can be insufficient for certain samples or test pieces, for example packeted cigarettes or 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 (5.2.). It is also recommended that the atmospheric relative humidity near the samples or test pieces be verified by the use of a reference hygrometer.

Note : If, for any reason, test samples are to be kept for longer than 10 days they should be stored in the original packaging or in air tight containers just large enough to contain the sample. It is recommended that tobacco and tobacco products be frozen after three months and stored at $-16\text{ °C} \pm 2\text{ °C}$ until needed.

5.2. *Checking of Equilibrium*

Equilibrium shall be considered to be attained either:

- a) when the relative variation of the mass of the sample or test pieces is not greater than 0.2% in 3 h;

or,

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