

# DETERMINATION OF DRY MATTER IN TOBACCO, TOBACCO PRODUCTS, FIBER- BASED MATRICES AND TOBACCO DERIVED PRODUCTS BY LOSS ON DRYING

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## Purpose

To determine the dry matter (b) (4) in tobacco, tobacco products, fibre-based matrices and tobacco derived products (also called purified products) by loss on drying.

## Applies to

(b) (4) Analytical and Product Science (APS).

## General information

Moisture content, dry content, and water content are defined within the division as follows.

*Moisture content:* The part that evaporates upon loss on drying of e.g. water, volatile compounds in %.

*Dry content (dry matter):* The amount of dry matter remaining following the evaporation of water and volatile compounds expressed in %.  $100\% - \text{moisture content \%} = \text{Dry content \%}$ .

*Water content:* The amount of water contained in a sample is expressed as %.

The method description covers the determination of moisture content and dry content in tobacco, tobacco products, fibre-based products, and tobacco derived products by loss on drying.

(b) (4)

At APS, the dry content is used to calculate the content of chemical components per amount of dry matter in a raw material.

When determining the dry content/moisture content, an individual component is not measured but the concentration that is obtained depends on the temperature and how long the sample stands in the oven. The selected temperature and length of time are tested to ensure that a stable weight is achieved for each instrument.

## Principle of the method

The method is a modified method based on Literature references 1 and 2. Moisture content/dry content is determined (b) (4)

## Method scope, measurement range and measurement uncertainty

(b) (4)

(b) (4)

#### Literature references

(b) (4)

Internal reference documents (b) (4) (available upon request)

(b) (4)

#### Risk assessment and safety instructions

##### Measures for risk levels

The risk assessment is made (b) (4) and the review (b) (4)

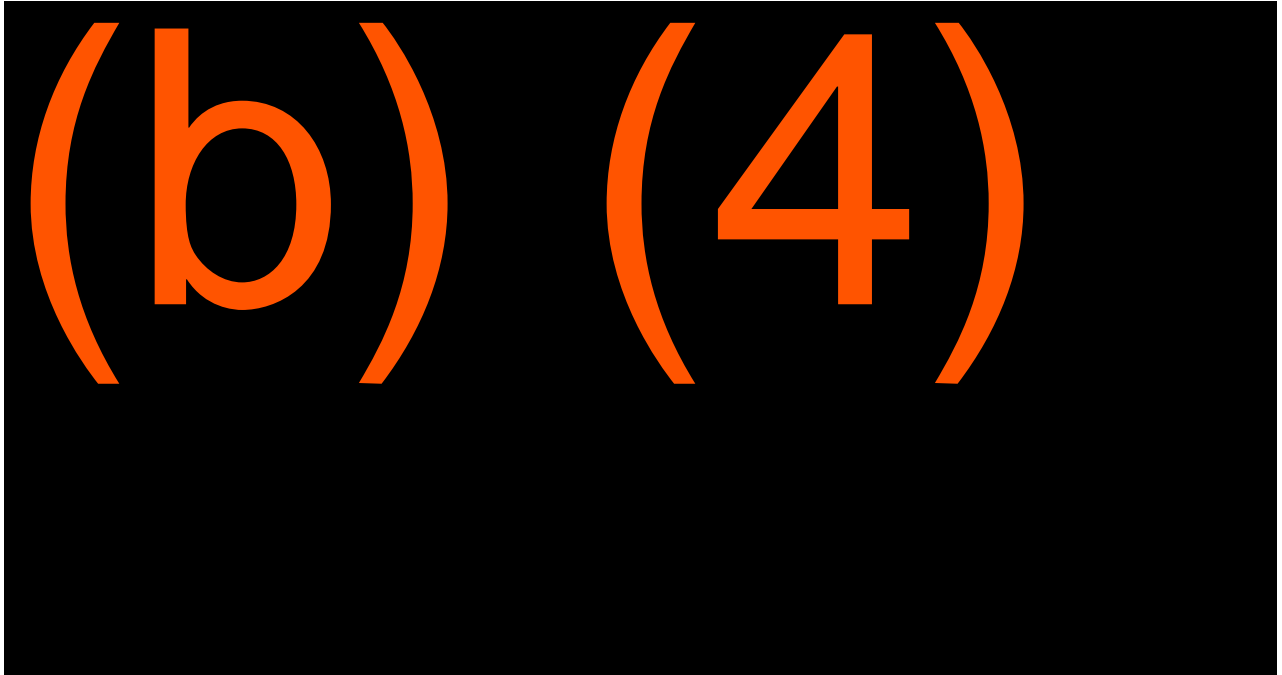
##### Summarised risk assessment

The work can be performed at an open bench and no risk mitigation measures need to be implemented.

##### Risk and safety phrases

(b) (4)

## Equipment



### Chemical

(b) (4)

### Check samples and reference materials

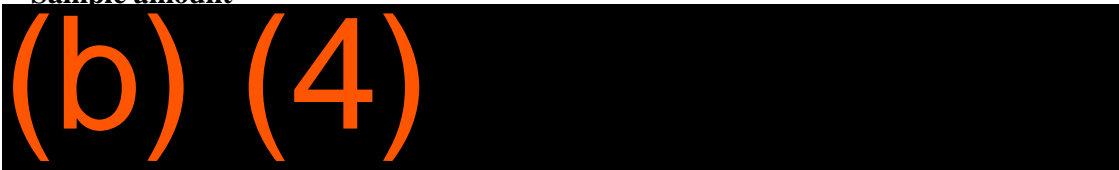
See each instrument instruction.

### Sample handling

#### Sample storage and preparation

(b) (4)

### Sample amount



## Analysis

### Calibration and verification of apparatus

See each instrument's instruction and measurement equipment at the laboratory.

### Analytical procedure

See the instruction for each instrument.

Table 2.



### Documentation

The logbook records the date of analysis, the executor, the check sample number, the control chart deviation, the calibration of temperature, maintenance, malfunctions and repairs.

### Data

#### Collection and storage of data

See each instrument instruction.

#### How to find results and raw data

(b) (4)

### Calculations



Dry content is calculated in accordance with the principle.

$$\text{Sample's dry content in } \% = 100 - \left( \frac{A - B}{A} \right) \cdot 100$$

Weighed out amount of sample before drying = A

Weighed out amount of sample after drying = B

### Quality assurance

(b) (4)

### Reporting of analysis results

See each instrument instruction.

### Revision history

Date	Comments
10/08/2010	(b) (4)
14/02/2012	
05/12/2012	
24/11/2017	
13/12/2017	
09/04/2018	

### Person responsible

Director APS

## Validation

Tables of the sample types used for validation of the method.

Table 3: (b) (4)

Sample type	Selected material	Moisture content	Sample designation
(b) (4)			

Table 4: (b) (4)

Sample type	Moisture content	Sample designation
(b) (4)		

Table 5: (b) (4)

Sample type	Moisture content	Sample designation
(b) (4)		

Table 6: (b) (4)

Sample type	Moisture content	Sample designation
(b) (4)		

(b) (4)

## Evaluated instruments

(b) (4)



Table 7. (b) (4)

Instrument	Manufacturer	Number
(b) (4)	(b) (4)	(b) (4)

#### Evaluated sample types

(b) (4)

#### Specificity

(b) (4)

#### Repeatability and Precision within the laboratory

(b) (4)

(b) (4)

Table 8: (b) (4)

(b) (4)

Comments: Precision is good for all instruments. Repeatability is good for all instruments.

Table 9: (b) (4)



(b) (4)

Table 11: (b) (4)

(b) (4)

### Reproducibility

(b) (4)

(b) (4)

(b) (4)

(b) (4)

(b) (4)

**Robustness (2001)**

(b) (4)

**The effect of cut-uncut pouches on measured moisture content value**

(b) (4)

Table 14: (b) (4)

	Standard deviation	Mean value % moisture	Significant difference
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(b) (4)	(b) (4)	(b) (4)	(b) (4)
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#### Measurement uncertainty

(b) (4)	(b) (4)
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(b) (4)

### Conclusion

(b) (4)