

# QUANTITATIVE ANALYSIS OF ETHANOL IN TOBACCO, TOBACCO PRODUCTS, AND FIBRE-BASED MATRICES WITH (b) (4)

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## Purpose

To determine the concentration of ethanol in tobacco, tobacco products and fibre-based matrices with (b) (4).

## Applies to

APRS

## General information

A sample solution prepared for the analysis of ethanol can also be used in the analysis of (b) (4) and (b) (4) simultaneously using the same instrument.

Note: All reference documents and additional information stated “available upon request” are in Swedish. They are available upon request but need to be translated into English first.

## Principle of the method



**Method scope, measurement range, reporting limit and measurement uncertainty**Scope

The method is used to determine the concentration of ethanol in tobacco, tobacco products and fibre-based matrices.

Measurement range

Ethanol (b) (4) by weight (b) (4) mg/g) as is.

(b) (4)

Measurement uncertainty

(b) (4)

The largest contribution to the measurement uncertainty is precision within lab followed by the stability of the sample extracts (set to maximum 4 days).

**Literature references**

1. (b) (4)

**Internal reference documents (available upon request)**

(b) (4)

**Risk assessment and safety instructions****Summarised risk assessment**

Suitable protective clothing must be worn such as lab coat, goggles and protective gloves when handling reagent 2, which is irritating to the skin as well as washing solution that is corrosive to the skin and eyes.

**Hazard and precautionary statements**

(b) (4)

CAS-no: (b) (4)

(b) (4)

(b) (4)

## Equipment

### Apparatus

(b) (4)

### Other equipment

(b) (4)

(b) (4)

### **Chemicals, reagents and solvents**

Solution/ampoules are stored in a refrigerator

(b) (4)

### **Check samples**

A certain type of loose snus is analysed as a check sample for ethanol (specially prepared with ethanol added) each time an analysis is performed. The check sample is stored in a freezer, a new can is taken out for each batch and brought to room temperature before weighing.

### **Preparation of standards and other solutions**

Standards and solutions are purchased ready for use in ampoules from Thermo Fisher Scientific. Each package is marked with the expiration date by the supplier.

## Sample handling

### Sample storage and preparation

(b) (4)

### Sample amount

The minimum amount of sample for performing an analysis is 7 grams, which is enough for three replicates.

## Analysis

### Calibration and verification of apparatus

(b) (4)

### Sample stability

The prepared sample solution has a shelf life in a refrigerator of 4 days if covered with a film or lid.

### Analytical procedure

(b) (4)



### Special instructions

(b) (4)

### Documentation

#### Raw data binder

(b) (4)

#### Log book

(b) (4)

#### Instrument binder

(b) (4)

### Data

#### Collection and storage of data

(b) (4)

#### Calculations

(b) (4)

### Quality assurance

(b) (4)

### Control chart

(b) (4)

### If the response for a sample is higher than the measurement range

At a concentration above the measurement range, the instrument automatically performs the necessary dilution during the sample analysis.

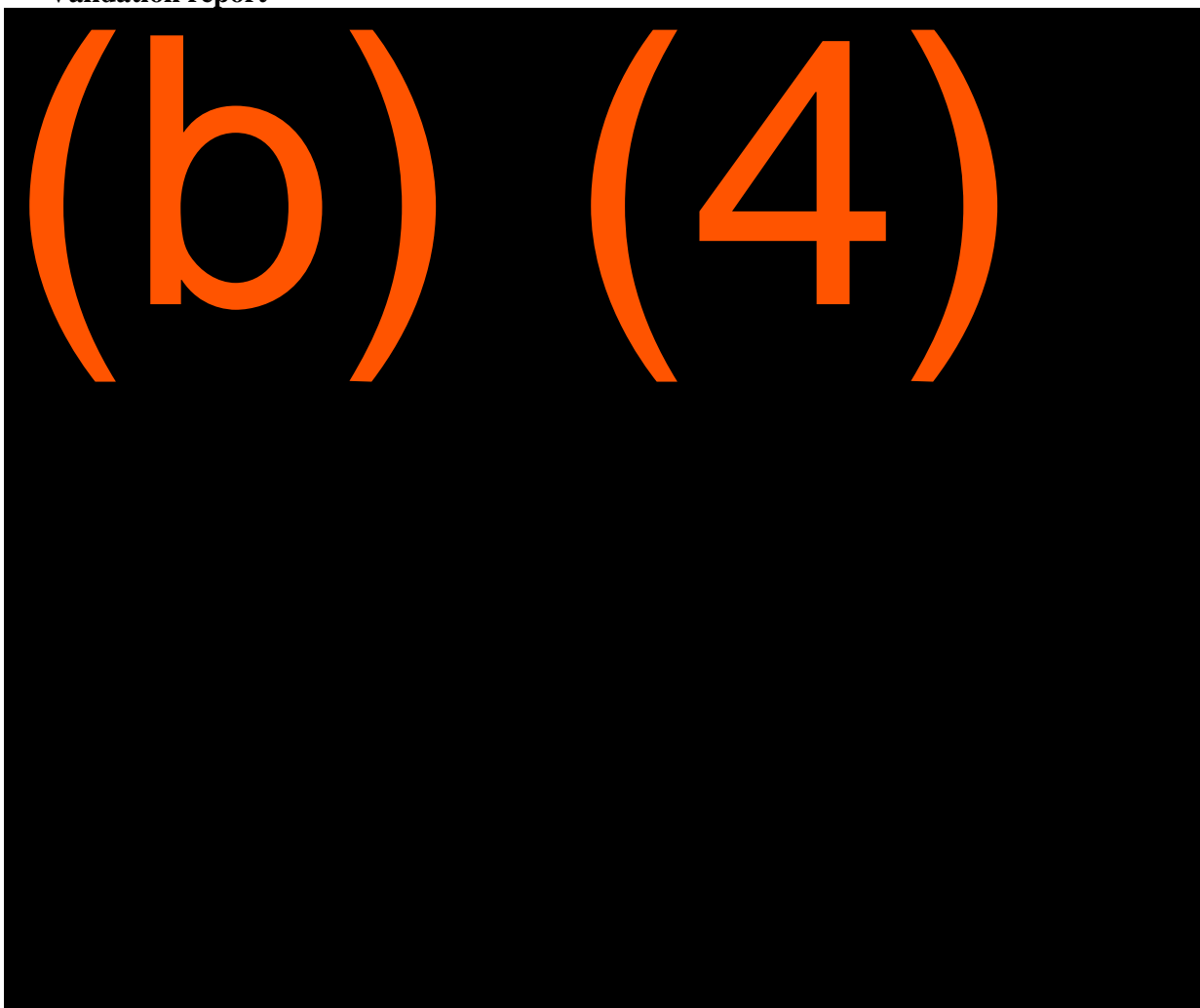
(b) (4)

### Person responsible

Director APS

## Validation

### Validation report



### Specificity



(b) (4)

**Repeatability**

(b) (4)

**Table 2.** (b) (4)

(b) (4)

**Precision within laboratory**

(b) (4)

(b) (4)

**Reproducibility/Interlaboratory comparisons**

(b) (4)

**Accuracy**

(b) (4)

**Table 4.** (b) (4)

(b) (4)

**Bias from accuracy data**

(b) (4)

**Extraction yield (Recovery)**

(b) (4)

**Table 5. (b) (4)**

(b) (4)

**Limit of detection (LOD) and Limit of quantification (LOQ)**

(b) (4)

(b) (4)

(b) (4)

### Linearity

(b) (4)

### Robustness

(b) (4)

### Measurement range and measurement uncertainty

(b) (4)



(b) (4)

### Conclusion

(b) (4)