ISO 23921:2020 (E)

Cigarettes — Determination of tobacco specific nitrosamines in mainstream cigarette smoke with an intense smoking regime — Method using LC-MS/MS

Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms and definitions

4 Principle

5 Apparatus

6 Reagents

7 Preparation

7.1 Preparation of glassware
7.2 Preparation of solutions
7.3 Preparation of standards
7.3.1 General
7.3.2 Preparation of internal standard solutions
7.3.2.1 Primary internal standard solution
7.3.2.2 Combined secondary internal standard solution
7.3.2.3 Working internal standard solution
7.3.3 Preparation of calibration standard solutions
7.3.3.1 Primary single TSNA solutions
7.3.3.2 Mixed TSNAs stock solution (I)
7.3.3.3 Mixed TSNAs stock solution (II)
7.3.3.4 Working standard solutions
7.3.3.5 Storage

8 Sampling

9 Tobacco product preparation

10 Sample generation — Smoking of cigarettes

10.1 General
10.2 Linear smoking
10.3 Rotary smoking

11 Sample analysis

11.1 Preparation of sample
11.1.1 General
11.1.2 Extraction for linear smoking (44 mm pad)
11.1.3 Extraction for rotary smoking (92 mm pad)
11.1.4 Final sample preparation
11.2 Analysis of samples by LC-MS/MS
11.2.1 General
11.2.2 HPLC set-up parameters (Example)
11.2.3 Mobile phase (Example)
11.2.4 Mobile phase: Gradient (Example)
11.2.5 MS/MS Set-up parameters (Example)

11.3 Calculation
11.3.1 Calibration curve
11.3.2 Determination of the TSNAs concentrations
11.3.3 Sample quantification
11.3.4 Determination of mainstream smoke TSNA deliveries

12 Repeatability and reproducibility

13 Test report

Annex A (informative) Example of typical chromatograms

Page count: 14