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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

YC/T 378-2010

**Cigarettes. Determination of carbonyls in sidestream cigarette
smoke. High performance liquid chromatographic method
(English Translation)**

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Foreword

Rule. "The structure and preparation of standard rules for standardization - Part 1" is given in accordance with the standards GB/T 1.1-2009 Drafted.

This standard was proposed by the State Tobacco Monopoly Bureau.

This standard by the National Standardization Technical Committee on Tobacco Cigarette Technical Committee (SAC/TC144/SC1) centralized.

This standard was drafted. Tobacco Hunan Industrial Co., Ltd., China National Tobacco Corporation, Zhengzhou Tobacco Research Institute.

Introduction

When issuing authority of the document drew attention to the statement of compliance with this document may involve "one kind of mainstream cigarette smoke the volatile carbonylation Determination of the content of a compound of "use of relevant patents.

The issuing authority for the patent document authenticity, validity and scope without any position.

The patent holder has to ensure that the issuing authority of the document, he was willing to reasonable and non-discriminatory terms and conditions with any applicant, Patent licensing negotiations. The patent holder's statement has been filed in the release mechanism of the present document. Related information is available through the following Contact at.

Patent Holder Name. China National Tobacco Corporation, Zhengzhou Tobacco Research Institute.

Address. Zhengzhou City, Henan Province High-tech Industrial Development Zone 2 Poplar

Street.

Please note that in addition to the above patents, some of the contents of this document may still involve patents. The issuing authority of this document does not undertake to recognize these special Lee responsibility.

Determination of carbonyl compounds in smoke cigarette sidestream High Performance Liquid Chromatography

1 Scope

This standard specifies a high performance liquid chromatographic method cigarette sidestream smoke carbonyl compounds.

This standard applies to the determination of cigarette sidestream smoke carbonyl compounds.

The method for determining cigarette sidestream smoke eight kinds of carbonyl compounds, namely formaldehyde, acetaldehyde, acetone, acrolein, propionaldehyde, crotonaldehyde, 2-butanone, butyraldehyde the limits of quantification were 129.2ng/cig, 163.8ng/cig, 198.9ng/cig, 164.0ng/cig, 189.8ng/cig, 273.5ng/cig, 247.5ng/cig and 272.6ng/cig, the detection limit respectively 36.9ng/cig, 47.5ng/cig, 58.5ng/cig, 45.6ng/cig, 56.5ng/cig, 78.4ng/cig, 72.8ng/cig and 81.2ng/cig.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

Laboratory use specifications and test methods GB/T 6682 Analysis GB/T 19609 cigarettes by conventional analytical determination of total particulate matter and tar smoking machine Principle 3 with tail cover, glass fiber filter (by 2,4-dinitrophenylhydrazine in acetonitrile solution treatment) and the gas absorbing liquid (2,4-dinitrophenylhydrazine in acetonitrile Solution) collecting cigarette sidestream smoke and carbonyl compounds derivatized by high performance liquid chromatography cigarette sidestream smoke are eight kinds of carbonyl Compound quantitatively analyzed.

4 Reagents and materials

In addition to special requirements, should use analytical reagent.

4.1 Reagents

- a) water, should be consistent with GB/T 6682 in a water requirement (0.45µm membrane filter before use);
- b) acetonitrile HPLC grade (or analytical redistilled after use);
- c) perchloric acid;
- d) pyridine;
- e) 2,4- dinitrophenylhydrazine (2,4-DNPH), before use recrystallized from acetonitrile;
- f) formaldehyde, acetaldehyde, acetone, acrolein, propionaldehyde, crotonaldehyde, 2-butanone, butanal 2,4-dinitrophenyl hydrazone derivative of the compound. Eight kinds phenylhydrazone Derivatives purity requirements. propanal not less than 97%, the other shall be not less than 99%.

4.2 Derivatization reagent

Weigh about 1.5g purified 2,4-dinitrophenylhydrazine solid [4.1.e)] was dissolved in about 80mL acetonitrile [4.1.b)], and then add 200µL into perchlorate [4.1.c)] after using an acetonitrile [4.1.b)] constant volume to 100mL.