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

GB/T 21131-2007

**Environmental tobacco smoke -- Estimation of its contribution to
respirable suspended particles -- Determination of particulate matter by
ultraviolet absorbance and by fluorescence**

环境烟草烟气 可吸入悬浮颗粒物的估测 用紫外吸收法和荧光法测定粒相物

(English Translation)

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Foreword

This standard is equivalent to the use of international standards ISO 15593.:2001 "environmental tobacco smoke inhalable suspended particulate matter with UV absorption (English version). This standard is equivalent to ISO 15593-2001 in technical content. Normative references Adopting international standards that have been translated into national standards.

Appendix A to this standard is an informative appendix.

This standard is proposed by the State Tobacco Monopoly Bureau.

This standard is under the jurisdiction of the National Tobacco Standardization Technical Committee (TC144).

The drafting unit of this standard. National Tobacco Quality Supervision and Inspection Center.

Introduction

Environmental Tobacco Flue Gas (ETS) is an aerosol consisting of gas phase and particulate matter due to the difference in gas phase and particle properties Different, resulting in the lack of correlation between the two, and thus accurately evaluate the indoor air environment, the level of tobacco smoke levels need to be measured on both phases are appropriate in the ideal environment Tobacco flue gas marked with the conditions, the most critical one is the environmental conditions in a certain range, the indicator must maintain a fairly stable proportional relationship with a contaminant or a class of contaminants (eg, suspended particles) (see reference [1]).

Note: All references cited in the bibliography are provided. For the purpose of providing information to users of this standard, the reference text in the standard text lists the the source of the literature.

UV particles (UVP) and fluorescent particles (FPM) meet this requirement, in a variety of ventilation conditions and sampling time with the smoke (RSP) remained a constant

proportional relationship. In contrast, nicotine (environmental tobacco flue gas aerosol gas phase (ETS-PM) does not maintain a constant proportional relationship with the environmental tobacco smoke particles (see reference [2]).

Inhalable suspended particulates are a very important indicator of the overall mass of air, and it has a variety of sources, such as combustion products Gas, dust, talc, insecticide dust, viruses, bacteria, etc. (see reference [3].) Thus, respirable suspended particulates are not rings the study shows that in most of the indoor space allowed to smoke, the average only 50% of the smoke, or less respirable suspended particulates are derived from tobacco smoke (see references [4] to [7].) The assay method described in this standard is effective Reducing the degree of uncontrollable deviations inherent in respirable suspended particulate matter as an environmental tobacco smoke marker method (see reference [4] ~ [6], [8] ~ [13]).

Because the measured spectral absorption is not unique to the organic tobacco smoke granules, these methods are environmental tobacco smoke (i.e., an over-high evaluation) of the effects of inhalable suspended particulates Will significantly increase the measured value of the UV particles (see reference [14]), while the tendency of the fluorescent particles is less obvious, but not Absolute exclusion of the existence of interference. In short, due to the existence of non-quantifiable interference, so these methods can only provide environmental tobacco smoke on the indoor A reference to the effects of respirable suspended particulates, rather than absolute values.

GB/T 21131-2007/ISO 15593.:2001 Estimation of respirable suspended particulates in environmental tobacco smoke Determination of Particle Matter by UV Absorption and Fluorescence Spectrometry

1 Scope

This standard specifies the sampling and determination of the effects of environmental tobacco smoke (ETS) on respirable particulate matter (RSP).

2 Normative reference documents

The terms of the following documents are incorporated by reference in this standard and are the terms of this standard. Any reference to the date of the document, (Excluding corrigenda) or revisions do not apply to this standard, however, encourage the parties to reach an agreement under this standard Whether the latest version of these files can be used, and the most recent version of the referenced document, which is not dated, applies to this standard.

ISO 648 laboratory glassware single standard pipette ISO 1042 laboratory glassware single line capacity bottle

3 Terms and definitions

The following terms and definitions apply to this standard.

The body has been out of the elbow, has been dilute the mainstream of flue gas and has been aging, dilute the side of the mixture of flue gas.

When the particle size selective sampling device was used, the trapping efficiency curve with the aerodynamic diameter of $4.0\ \mu\text{m}$ was obtained particle.

By comparing the absorbable suspended particulate matter with the UV absorbance of the substitute standard, the tobacco smoke particles can be inhaled Estimation of the impact rate of suspended particulates.

By comparing the fluorescence intensity of the sample of the respirable suspended particulate matter with the reference standard, the tobacco smoke particles can be Estimation of the impact rate of suspended particulates.

The particulate part of the environmental tobacco smoke.

Its concentration and the known concentration of environmental tobacco particulate matter solution has established a quantitative relationship between the chemicals.

For example. UV particles with 2, 2', 4, 4'-tetrahydroxybenzophenone (tetrahydroxybenzophenone) (THBP) as a substitute Standard; fluorescent particles with scopolamine (scopoletin) as a substitute standard.

GB/T 21131-2007/ISO 15593.:2001