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

YC/T 159-2019

**Tobacco and tobacco products - Determination of water soluble
sugars - Continuous flow method
(English Translation)**

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Foreword

YC/T 405 "Tobacco and tobacco products - Determination of multi-pesticide residues" is divided into five parts.

- Part 1. High performance liquid chromatography - tandem mass spectrometry method;
- Part 2. Determination of organochlorine and pyrethroids pesticide - Gas chromatographic method;
- Part 3. Gas chromatography - Mass spectrometry method and gas chromatographic methods;
- Part 4. Determination of dithiocarbamate pesticide residues - Gas chromatography-mass spectrometry method;
- Part 5. Determination of maleic hydrazide residue - High performance liquid chromatography method.

This is Part 5 of YC/T 405.

This Part was drafted in accordance with the rules specified in GB/T 1.1-2009

AND GB/T 20001.4-2001.

Please note that some contents of this document may involve patents. The issuing authority of this document does not undertake any responsibility of identifying these patents.

This Part was proposed by the State Tobacco Monopoly Bureau.

This Part shall be under the jurisdiction of the National Tobacco Standardization Technical Committee - Cigarette Institute Branch (SAC/TC 144/SC 1).

This drafting organizations of this Part. China National Tobacco Corporation - Zhengzhou Tobacco Research Institute, National Tobacco Quality Supervision and Inspection Center, China Tobacco Standardization Research Center, Hongta Tobacco (Group) Co., Ltd., China Tobacco Hubei Industry Corporation.

1 Scope

This Part of YC/T 405 specifies the high performance liquid chromatography method for the determination of maleic hydrazide residue in tobacco and tobacco products.

This Part applies to the determination of maleic hydrazide pesticide residues in tobacco and tobacco products. As for this method, the detection limit is 0.66mg/kg AND the quantitative limit is 2.18mg/kg.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

GB/T 6682 Water for analytical laboratory use - Specification and test methods

YC/T 31 Tobacco and tobacco products - Preparation of test sample and determination of water content - Oven method

3 Principle

The crushed sample in the hydrochloric acid solution is heated for reflux and extraction, then the extract is purified in C18 SPE column AND eluted by sodium hydroxide solution, AND the elution is detected by the liquid chromatographic UV detector.

5.5 Analytical balance, sensitivity is 0.0001g.

5.6 0.45μm aqueous filter membrane.

6 Sample preparation

In accordance with YC/T 31, PREPARE sample and MEASURE the sample's moisture content.

7.1 Extraction

WEIGH about 5g of samples, accurate to 0.01g; PLACE it into a 250mL grinding mouth round bottom flask; ADD 50mL of hydrochloric acid solution (4.5).

PLACE the round flask in an electric heating mantle (5.2); INSTALL a spherical condenser pipe (5.4); HEAT it for reflux. CONTROL the reflux speed to make the steam reach to the second ball of the condenser pipe; continuously HEAT for reflux for 1h. After completion of reflux, LET it cool down to room temperature; USE qualitative filter paper to filter sample; COLLECT the filtrate into a 100mL volumetric flask; USE appropriate amount of hydrochloric acid solution (4.5) to rinse the condenser pipe and the extracted sample; FITER the filtrate and COMBINE it into this 100mL volumetric flask; USE hydrochloric acid solution (4.5) to make the volume reach to the mark.

7.2 C18 column pretreatment

TAKE 2mL of methanol (4.4) and 2mL of 0.1mol/L sodium hydroxide solution (4.6) to consecutively pre-rinse the C18 solid phase extraction column (5.1).

7.3 Purification

From the 100mL volumetric flask, accurately PIPETTE 2mL of extract (7.1) onto the C18 solid phase extraction column (5.1); immediately COLLECT the effluent component into a 5mL volumetric flask (4.6); USE 2mL of 0.1mol/L sodium hydroxide solution to elute it; COMBINE the eluent into this 5mL volumetric flask; USE sodium hydroxide solution (4.6) to make the volume reach to the mark;

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