

ICS 13.310
CCS A 92

GA

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

GA/T 1516-2018

**Forensic science -- Examination methods for tire rubbers --
Pyrolysis and gas chromatography-mass spectrometry**

法庭科学 轮胎橡胶检验 裂解-气相色谱-质谱法

(English Translation)

Issued on: September 26, 2018

Implemented on: September 26, 2018

Issued by: Ministry of Public Security

Table of Contents

Foreword
1 Scope
2 Normative references
3 Terms and definitions
4 Principle
5 Reagents and materials
6 Instruments and equipment
7 Sample preparation

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

Please note that some elements of this document may involve patents. The issuer of this document is not responsible for identifying these patents.

This standard was proposed by the National Criminal Technical Standardization Technical Committee Physical and Chemical Inspection Technical Committee (SAC/TC179/SC4) and Centralize.

This standard was drafted. Material Evidence Identification Center of the Ministry of Public Security, Beijing Municipal Criminal Investigation Corps, Inner Mongolia Autonomous Region Xing'an League Public Security Bureau.

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Forensic science tire rubber inspection Pyrolysis-gas chromatography-mass spectrometry

1 Scope

This standard specifies the pyrolysis-gas chromatography-mass spectrometry method for tire rubber in the forensic sciences.

This standard applies to the inspection of tire rubber in the scientific field of the court, and it can also be used in other fields.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article Pieces. For undated references, the

latest version (including all amendments) applies to this document.

GA/T 242 Physicochemical test term for trace material evidence

3 Terms and definitions

The terms and definitions defined in GA/T 242 apply to this document.

4 Principle

Tire rubber is a kind of high molecular organic compound. It consists of rubber raw materials, vulcanizing agents, active agents, accelerators, antioxidants, reinforcing agents, and fillers.

Agents and other components, mainly include butadiene rubber, natural rubber, styrene-butadiene rubber, natural/styrene-butadiene/butadiene rubber, natural/butadiene rubber five categories. At high temperature Under the action, tire rubber will crack to produce a variety of small molecule compounds. Different tire rubbers have different chemical compositions and high temperature cracked products.

Not the same. Instantly pyrolyze tire rubber samples into small molecules that can be vaporized using a cracker, and then analyze these by a gas chromatography/mass spectrometry system.

The cracked products are separated and tested, and the tire rubber is tested based on the qualitative and quantitative results of the cracked products.

5 Reagents and materials

The required reagents and materials are as follows.

- a) dial
- b) scalpel.

6 Instruments and equipment

The required instruments and equipment are as follows.

- a) stereo optical microscope;
- b) Pyrolysis-gas chromatography-mass spectrometer.

7 Sample preparation

Under a stereo optical microscope, a trace of rubber and a scalpel were used to separate the trace rubber attached to the specimen. Root the separated rubber sample Prepare the

sample to be tested according to the sample preparation requirements of the cracker. The amount of samples to be tested does not exceed 100 µg.