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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 39695-2020

Identification of volatile components of rubber fumes. Thermodesorption and gas chromatographic method with mass spectrometric detection

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1:1-2009:

This standard uses the translation method equivalent to ISO /T S17796:2013 "Rubber uses poly 2,6-diphenyl p-phenylene ether adsorbent adsorption

Capture and identify volatile components in rubber flue gas (thermal desorption-gas chromatography-mass spectrometry)":

This standard has made the following editorial changes:

---The name of the standard was revised to "Identification of Volatile Components in Rubber Flue Gas Thermal Desorption-Gas Chromatography-Mass Spectrometry";

---Added warnings;

--- In the "terms and definitions", "the classification is based on the definition of the World Health Organization (WHO)" as a note for the entire chapter;

--- For ease of use, an explanatory note has been added (see Chapter 3 and 5:4:3):

This standard was proposed by the China Petroleum and Chemical Industry Federation:

This standard is under the jurisdiction of the National Rubber and Rubber Products Standardization Technical Committee (SAC/TC35):

Drafting organizations of this standard: Beijing Physical and Chemical Analysis and Testing Center, Shandong Linglong Tire Co:, Ltd:, Guangzhou Institute of Synthetic Materials

Co:, Ltd:, Anhui Jiatong Passenger Radial Tire Co:, Ltd:, Yiweiyi Rubber Research Institute Co:, Ltd:, Triangle Tire Co:, Ltd:, Fengshen

Tire Co:, Ltd:, Sailun Group Co:, Ltd:, Beijing Rubber and Tire Testing Technology Service Co:, Ltd:, Beijing Rubber Industry

Research and Design Institute Co:, Ltd:

1 Scope

This standard stipulates that a solid adsorbent of 2,6-diphenylphenol polymer resin is used to capture the volatile components in the rubber flue gas:

A method for qualitative analysis of volatile components by thermal desorption-gas chromatography-mass spectrometry (TD-GC-MS):

This standard applies to the screening of rubber emissions in rubber processing workshops and storage environments:

Warning: The operators of this standard should be familiar with the detection and analysis procedures of gas chromatography-mass spectrometry: All about the use and parameters of GC-MS

The operation details of the settings are consistent with the operation manual provided by the equipment manufacturer, so this standard does not contain detailed instrument operation steps: This standard

The prescribed qualitative methods are not suitable for quantitative analysis:

2 Terms and definitions

The following terms and definitions apply to this document:

Note: This classification is based on the definition of the World Health Organization (WHO):

2:1

Semi-volatile organic compound; SVOC

Organic compounds with a boiling point between (240~260) degrees C and (380~400) degrees C:

Note: Under atmospheric pressure, certain components decompose before reaching the boiling point, and it is difficult or impossible to determine the boiling point: Vapor pressure divides organic compounds

Another criterion for volatility is that the vapor pressure of semi-volatile organic compounds is between 10-2kPa and 10-8kPa:

2:2

Volatile organic compound; VOC

Organic compounds with a boiling point between (50~100) degrees C and (240~260) degrees C:

Note: Under atmospheric pressure, certain components decompose before reaching the boiling point, and it is difficult or impossible to determine the boiling point: Vapor pressure

divides organic compounds

Another criterion for volatility is that the saturated vapor pressure of general volatile organic compounds at 25°C is greater than 102kPa:

2:3

Volatile organic compounds veryvolatileorganiccompound;VVOC

Organic substances with a boiling point below 0°C to (50~100)°C:

Note: Under atmospheric pressure, certain components decompose before reaching the boiling point, and it is difficult or impossible to determine the boiling point: Vapor pressure divides organic compounds

Another criterion for volatility is that the vapor pressure of volatile organic compounds is usually greater than 15kPa:

3 Principles of the method

Use a sampling pump to trap the rubber flue gas on the adsorption material, release the flue gas components from the trap through thermal desorption, and use mass spectrometry

The detector identifies the smoke components: This method can measure adsorption components other than benzene:

The actual composition of emissions depends on the rubber formulation, processing and production technology selected for rubber products: At the same time, the environmental humidity may affect the suction