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

GB/T 35804-2018

**Rubber, vulcanized or thermoplastic -- Resistance to ozone
cracking -- Test methods for determining the ozone
concentration in laboratory test chambers**

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13.6 g of potassium dihydrogen phosphate (KH_2PO_4);

30 g $\pm$ 2 g of potassium iodide (KI).

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 1431-3:2000 "vulcanized rubber or thermoplastic rubber ozone cracking part 3.

Reference and optional test methods for determining the concentration of ozone in the test chamber.

The documents of our country that have a consistent correspondence with the international documents referenced in this standard are as follows.

---GB/T 7762-2014 Vulcanized rubber or thermoplastic rubber ozone crack resistance static tensile test (ISO 1431-1.

2004, NEQ)

---GB/T 13642-2015 Vulcanized rubber or thermoplastic rubber ozone crack resistance dynamic tensile test (ISO 1431-1.

2004, NEQ)

This standard has been edited as follows.

For ease of use, change the standard name to the test for ozone concentration in the test chamber for vulcanized rubber or thermoplastic rubber.

Method of inspection.

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).

This standard was drafted. Guangzhou Synthetic Materials Research Institute Co., Ltd., Shandong Linglong Tire Co., Ltd., Beijing Rubber Industry Research

Design Institute, Fengshen Tire Co., Ltd., Anhui Jiatong Passenger Radial Tire Co., Ltd., Triangle Tire Co., Ltd., Yiwei Yi Rubber

Rubber Research Institute Co., Ltd., Guizhou Tire Co., Ltd., High Speed Rail Testing Instrument Co., Ltd., Jiangsu Mingzhu Testing Machinery Co., Ltd.

Introduction

There are several methods for analyzing ozone-air mixed gas in rubber ozone cracking test, including wet chemical method, electrochemical method, and purple

External absorption method and ethylene chemiluminescence method.

In principle, wet chemical methods, electrochemical methods, and ultraviolet absorption methods are absolute methods, but in practice these methods are usually

The same test results could not be obtained.

The wet chemical method is a traditional test method used in the rubber industry and national standards to absorb ozone with potassium iodide solution, and then

The iodine element produced by the reaction was titrated with sodium thiosulfate. Wet chemical methods are not suitable for continuous operation or control, so wet chemistry in practical applications

The method is not as convenient as the instrumental analysis method. The test results show that the wet chemical method has small changes in the test procedure, the concentration of the reagent and the purity.

The degree is very sensitive and there is considerable controversy over the stoichiometry of the reaction.

Electrochemical methods are widely used in the rubber industry and are very convenient for continuous monitoring of ozone. Chemiluminescence is also widely used in rubber

Glue industry.

Recently, UV absorption analyzers have become more and more widely used, and they also have continuous monitoring capabilities. More importantly, all key environmental protection machines

The UV absorption analysis method is adopted as the standard, and the results of the ultraviolet analysis method are considered to be reliable.

Therefore, other methods are calibrated using this standard UV absorption method as a reference method. Like all other inspection equipment, UV

The accuracy of the absorption analyzer depends on the calibration and maintenance of its components, so the UV absorption analyzer is also calibrated using known standard equipment.

Several countries are conducting research and proposing the establishment of benchmark equipment.

Although this standard is mainly for ozone analysis, it also focuses on atmospheric pressure on rubber at constant ozone concentration (usually in volume fraction table).

Show) the effect of crack rate. Inter-laboratory testing between North American laboratories shows interlaboratory testing at atmospheric pressures with significant differences

The difference in the test results can be corrected by specifying the partial pressure of the ozone concentration (see Appendix A).

It must be noted that ozone is highly toxic. Measures need to be taken to reduce the exposure of test personnel to ozone. No stricter or no violation of the country

In the case of home safety regulations, it is generally considered that the maximum ozone concentration that the human body can reach is 10 pphm, and the maximum average ozone that needs to be in contact with the human body.

The concentration is below the maximum allowable concentration.

If you are not using a fully enclosed system, it is recommended to exclude ozone-containing air through the exhaust vents.

Vulcanized rubber or thermoplastic rubber resistant to ozone cracking

Test method for determining ozone concentration in test chamber

Warning. Personnel using this standard should have hands-on experience in formal laboratory work. This standard does not address all possible security issues.

It is the responsibility of the user to take appropriate safety and health measures and to ensure compliance with the conditions set by the relevant national regulations.

1 Scope

This standard specifies three methods for determining the concentration of ozone in a test chamber.

Method A - UV Absorption. This method is a baseline method for calibration of Method B

and Method C.

Method B---Instrument analysis method.

B1. electrochemical method;

B2. Chemiluminescence method.

Method C---wet chemical method.

Program I;

Procedure II;

Procedure III.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

Vulcanized rubber or thermoplastic rubber - Ozone cracking - Part 1 . Static tensile test (Rubber, vul-

canized or thermoplastic-Resistance to ozone cracking-Part 1.Static strain test)

Vulcanized rubber or thermoplastic rubber - Ozone cracking - Part 2. Dynamic tensile test (Rubber, vul-

canized or thermoplastic-Resistance to ozone cracking-Part 2.Dynamic strain test)

ISO 13964.1998 Air quality - Determination of ozone in air - Ultraviolet spectrophotometric method (Air quality-Determina-

tion of ozone in ambient air-Ultraviolet photometric method)

3 Principle

Extraction of ozone-air mixture from an ozone chamber, analysis by instruments using UV absorption or UV-assisted calibration

Method or chemical analysis method to determine the ozone concentration.

4 equipment

The equipment for determining the ozone concentration is as follows.

---UV absorber;