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

GB/T 7764-2017

Rubber identification -- Infrared spectrometric method

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Foreword

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

This standard replaces GB/T 7764-2001 "rubber identification of infrared spectroscopy."

Compared with GB/T 7764-2001, the main technical changes

As follows.

--- Remove the spectral analysis of nitrile ester (2001 version of 1.11);

--- Increase the spectral analysis of fluoroelastomers (see 4.1.1.5), delete the fluoroelastomer -23, Viton-26, Viton -246 spectral analysis

(2001 version 1.13);

--- Added M class in. Acrylate rubber, acrylic ester and ethylene rubber, chlorinated polyethylene spectrum analysis (see Appendix B);

--- Increased category O. Ethylene oxide and epichlorohydrin copolymer, epichlorohydrin - ethylene oxide - allyl glycidyl ether tris

Spectral analysis of polymers (see Appendix B);

--- Increasing Q. Polydimethylsiloxane, polymethylphenylsiloxane, polymethylfluorosilane spectral analysis (see Appendix B);

--- Increased category R. Brominated butyl rubber, brominated isobutylene poly para-methyl styrene, synthetic isoprene rubber, hydrogenated acrylonitrile -

Butadiene rubber, carboxy-acrylonitrile-butadiene rubber, PVC cross-linked nitrile rubber, emulsion polymerization SBR, solution polymerization SBR, hydrogen

Spectral analysis of styrene-butadiene rubber (see Appendix B);

--- Increased Class T in the spectral analysis of polysulfide rubber (see 4.1.5);

--- Increase the TFE category. Styrene and butadiene block copolymer, polystyrene - poly (ethylene - butylene) - polystyrene, syndiotactic poly (1,2-butadiene), thermoplastic elastomers, ether-esters (soft segments are ester or ether segments) (see Appendix B).

This standard uses the translation method identical with ISO 4650.2012 "rubber identification of infrared spectroscopy."

The documents of our country that are consistent with the corresponding international documents that are normative references in this standard are as follows.

--- GB/T 3516-2006 Determination of rubber solvent extract (ISO 1407.1992, MOD)

--- GB/T 22027-2008 Thermoplastic Elastomer Nomenclature and Abbreviations (ISO 18064.2003, IDT)

This standard proposed by the China Petroleum and Chemical Industry Federation.

This standard by the National Rubber and Rubber Products Standardization Technical Committee (SAC/TC35) centralized.

This standard was drafted unit. Shenyang Rubber Research Institute Co., Ltd., Shandong Linglong Tire Co., Ltd., Guangzhou Feng Li rubber tires

Co., Ltd., Guangzhou Institute of Synthetic Materials Co., Ltd., Anhui Jia Tong passenger radial tire Co., Ltd., Triangle Tire Co., Ltd.,

Chaoyang Wave Horse Tire Co., Ltd., Shenyang Chemical School, Yee Yi Yue Rubber Research Institute Co., Ltd., Fushun Icos New Materials Co., Ltd.

Division, Xishuangbanna Prefecture Quality and Technical Supervision Comprehensive Testing Center, Beijing Rubber Industry Research and Design Institute, PerkinElmer Enterprise Management (Shanghai) has

Limited company.

1 Scope

This standard specifies the use of two kinds of infrared spectroscopy of raw rubber, vulcanized rubber, unvulcanized rubber and thermoplastic elastomers were identified. the first

The method of transmission is transmission analysis. The second method is reflection analysis.

See Appendix A for a comparison of spectra obtained using reflection analysis (attenuated total reflection ATR) and transmission analysis (film).

Reflectance analysis and transmission analysis include the use of rubber pyrolysis products for the determination, or by film method solution film or

Molding film (only plastic raw) for infrared analysis.

See Appendix B for a typical infrared spectrum.

This method should be the experience of the test sample preparation and analysis of infrared spectroscopy. For better results, follow the product

Ming operation spectrometer. This standard does not include infrared spectrometer detailed operating instructions.

This method is only suitable for qualitative analysis.

2 Normative references

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

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

ISO 1407 Determination of rubber solvent extract (Rubber-Determination of solvent extract)

ISO 18064 Thermoplastic elastomers terms and abbreviations

(Thermoplastic elastomers-Nomenclature and abbrevi-

ated terms)

3.1 Transmission Analysis

First extract the rubber samples to be tested, and then carefully prepared into a plastic film, vulcanized rubber pyrolytic or vulcanized film for spectral analysis.

Record infrared spectra, compared with the standard reference spectra were identified.

3.2 reflection analysis method

The method is directly applied to the analysis of raw rubber, vulcanized rubber and unvulcanized rubber. For vulcanized and unvulcanized rubber, organic or inorganic fillers are stored

It may affect spectral analysis.

4.1 Summary

Both methods are suitable for raw rubber, vulcanized rubber and unvulcanized rubber. They are suitable for the following types of single or dual use rubber (small ratio

Example polymer content is usually 10% to 20% of the total) (except 4.2).

4.1.1 M series

4.1.1.1 Acrylate rubber (ACM) Copolymers of ethyl acrylate (or other acrylate) and small amounts of vulcanization accelerator monomers.