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**INDUSTRY STANDARD OF THE
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**Technical requirement for environmental protection products.
Fast analyzer for detergent in gasoline by thin-layer
chromatography
(English Translation)**

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Table of Contents

Foreword

1 Scope of application

2 Normative references

3 Terms and definitions

3.1 Effective substances in gasoline detergents effective substances in gasoline detergent

3.2 SPE solid phase adsorption column solid phase extraction

3.3 Thin layer chromatography

3.4 Ratio shift value R_f value

3.5 Reference solution

4 Basic requirements

4.1 Appearance

4.2 Composition

4.3 Environmental conditions

5 Performance requirements

6 Insulation resistance 20Mohm or more

7 Thin plate uniform without bubbles

7.1 Inspection classification

7.2 Factory inspection

7.3 Type inspection

7.4 Decision rules

9 Withstand voltage -- $\sqrt{6.10}$

Foreword

In order to implement the "Environmental Protection Law of the People's Republic of China", reduce emissions of automobile engine pollutants, and supervise motor gasoline.

This standard is established by the addition of detergent.

This standard specifies the basic requirements, performance requirements, test methods, and methods for the rapid determination of the gasoline detergent for the vehicle.

Inspection rules and signs, packaging, transportation and storage.

This standard is formulated by the Science and Technology Standards Department of the

Ministry of Environmental Protection.

This standard was first developed.

This standard is mainly drafted by. China Environmental Protection Industry Association, Tianjin Yuetai Petrochemical Technology Co., Ltd., Shenzhen Runhe Code Industry Co., Ltd.

This standard was approved by the Ministry of Environmental Protection on July 31, 2012.

This standard has been implemented since November 1, 2012.

This standard is explained by the Ministry of Environmental Protection.

Technical requirements for environmental protection products Thin layer chromatography, rapid cleaning agent for motor gasoline tester

1 Scope of application

This standard specifies the technical requirements for the determination of detergents for motor gasoline and ethanol gasoline by thin layer chromatography.

Inspection methods, inspection rules, marking, packaging, transportation and storage.

This standard applies to the detection of automotive gasoline, ethanol gasoline and methanol gasoline whether a sufficient amount of polyisobutylene and Polyetheramine (molecular weight 600-1500) is a rapid tester for detergents of effective detergents.

2 Normative references

This standard refers to the terms of the following documents. For undated references, the valid version applies to this standard.

GB/T 191 packaging storage and transportation icon GB 9969.1 General instructions for the use of industrial products GB/T 13306 signage General technical conditions for GB/T 13384 mechanical and electrical product packaging GB 17930 motor gasoline JB/T 9329 Basic environmental conditions and test methods for instrumentation transportation, and storage

3 Terms and definitions

The following terms and definitions apply to this standard.

3.1 Effective substances in gasoline detergents effective substances in gasoline detergent

Among the substances used in gasoline detergents, there are mainly polyisobutylene amines and polyether amines.

3.2 SPE solid phase adsorption column solid phase extraction

A small adsorption column for adsorbing or purifying samples.

3.3 Thin layer chromatography

The stationary phase is uniformly applied to the thin plate to form a thin layer of a certain thickness and has a certain separation activity.

Chromatographic separation on a thin layer is called thin layer chromatography.

3.4 Ratio shift value R_f value

In thin-layer chromatography, the ratio of the distance from the origin to the center of the spot on the thin plate and the distance from the origin to the front of the solvent.

3.5 Reference solution

A polyetheramine or polyisobutylene amine is formulated into a known amount of solution equivalent to the effective detergent component for detection the performance of the instrument and the quantitative reference standard.

HJ -----201-

4.1 Appearance

4.1.1

The surface and decoration of the casing should be free from cracks, deformation, scratches, dirt, burrs, etc. The surface coating should be uniform.

No corrosion, rust, shedding and wear.

4.1.2

Under normal operating conditions, it can work smoothly without danger.

4.1.3

The product assembly should be firm, the parts should be tightened without looseness, and the buttons, switch door locks, etc. should be matched with appropriateness, and the control can be flexible.

Each part is not easy to produce mechanical and electrical faults, and there should be static grounding facilities.

4.1.4

The heat-bonding part of the separation part shall not be deformed or changed by heating.

4.1.5

The whole machine should be easy to maintain and inspect the operation.

4.2 Composition

The composition of the detergent in the thin layer chromatography gasoline should include two parts. the pretreatment part and the separation and detection part.

The general pretreatment part consists of a vacuum pump, a rotary evaporator and an SPE solid phase adsorption column for concentrating and purifying the sample;

The separation and detection sections are composed of a thin layer chromatography plate and an ultraviolet lamp.

4.2.1

The vacuum pump is a circulating water vacuum pump or an oil-free vacuum pump with a vacuum of -0.090 MPa to -0.096 MPa.

4.2.2

Rotary evaporators should ensure the corrosion resistance and life requirements of the sealing system at high temperatures and maintain good temperatures at high temperatures.

Sealing; glass accessories should be made of hard glass with high temperature resistance and corrosion resistance; the maximum bath temperature of the evaporator should be greater than 180 °C.

It can be adjusted from room temperature to 180 °C.

4.2.3

SPE solid phase adsorption column. 5 ml medical syringe with silica gel (180μm~250μm), loading 500 Mg ± 20 mg.

4.2.4

UV lamp. The short-wavelength UV wavelength should be 254 nm and the long-wavelength UV wavelength should be 365 nm.

4.2.5

Thin-layer chromatography plates. height should be no less than 20cm, width should be no less than 10cm, coating thickness is 0.2mm~0.3mm, HF254 silica gel with a particle size of 10μm to 40μm should be uniform and free of bubbles.

4.3 Environmental conditions

The working environment temperature of the thin layer chromatography gasoline detergent analyzer is -5 ° C ~ 45 ° C, the relative humidity is less than 85%, applicable the effective content of the detergent is in the range of 50 mg/L to 800 mg/L.