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

GB/T 12688.8-2011

Replacing GB/T 12688.8-1998

**Test method of styrene for industrial use -- Part 8:
Determination of content of inhibitor (p-tert-butylcatechol) --
Spectrophotometric method**

工业用苯乙烯试验方法 第8部分：阻聚剂(对-叔丁基邻苯二酚) 含量的测定 分光
光度法

(English Translation)

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Table of Contents

Foreword
1 Scope
2 Normative references
3 PRINCIPLE OF THE METHOD
4 Reagents and materials

Foreword

GB/T 12688 "for industrial use - Test methods" is divided into the following sections.

- Part 1. purity and hydrocarbon impurities - Gas chromatographic method;
- Part 3. Determination of polymer content;
- Part 4. Determination of the peroxide titration;
- Part 5. Determination of total aldehyde titration;
- Part 6. for industrial use - Determination of trace sulfur - Oxidative Microcoulometry;
- Part 8. polymerization inhibitor (p - tert butyl catechol) determination of spectrophotometry;
- Part 9. Trace Benzene by Gas Chromatography.

This section GB/T 12688 Part 8.

The partial modification using ASTM D4590-09 "spectrophotometer styrene monomer or alpha- methyl styrene p - tert-butyl-o-phenylenediamine Standard Test Method two phenol content "(in English), the structural difference between this part and ASTM D4590-09 in Appendix A.

This section compared with ASTM D4590-09 main technical changes as follows.

- Normative references cited in our standards;
- Repeatability limit use of the provisions.

This Part replaces GB/T 12688.8-1998 "industrial styrene polymerization inhibitor (p - tert-butyl catechol) Determination of spectral Spectrophotometry. " this portion of the GB/T 12688.8-1998 The main differences are as follows.

- Changing the name of the standard;

- Revised to - tert-butyl catechol measurement range;
- Modified preparation methods and the shelf life of an alcoholic solution of sodium hydroxide;
- Modify the sample and reagent consumption;
- Modify the determination of standard curve drawing and sample reference solution;
- Note 7.1.2 amended;
- Increasing the density measurement results is calculated correction.

Appendix A of this section is an informative annex.

This part is proposed by the China Petroleum and Chemical Corporation.

This part of the National Standardization Technical Committee Petrochemical Chemical Technical Committee (SAC/TC63/SC4) centralized.

This section drafted by. China Petroleum and Chemical Corporation Beijing Yanshan Company.

1 Scope

This section provides for industrial use styrene - Determination of tert-butyl catechol (TBC) content.

This section applies to industrial use - Determination of TBC, its scope of 1mg/kg ~ 100mg/kg.

Any other compounds containing styrene can generate color and alcohol solution of sodium hydroxide, were measured for interference. But if it is known the compound and its concentration in the sample, perhaps join this compound in the preparation of standard solutions and be compensated.

This section is not intended to illustrate its use of all safety-related issues. Responsibility of the user to establish appropriate safety and health measures Facilities, to ensure compliance with the provisions of the relevant national regulations.

Note: styrene flammable. When in contact with peroxide, an inorganic acid and aluminum chloride exothermic polymerization reaction occurs. High concentration its liquid styrene vapor on the eyes and respiratory system irritation there.

2 Normative references

The following documents contain provisions which, through reference GB/T 12688 in this section constitute provisions of this section. For dated reference documents Member, all subsequent amendments (not including errata content) or revisions do not apply to this

section, however, encouraged to reach under this section Parties to research agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 3723 Sampling of chemical products for industrial use General Safety (GB/T 3723-1999, ISO 3165. 1976, idt) GB/T 6680 General rules for sampling liquid chemical products GB/T 6682 analytical laboratory use specifications and test methods (GB/T 6682-2008, ISO 3696. 1987, MOD) GB/T 8170 repair value expressed about the rules and limit values and judgment

3 PRINCIPLE OF THE METHOD

Sodium hydroxide was added to the alcohol solution styrene sample, resulting in pink. Measuring the absorbance at 490nm with a spectrophotometer, and with the calibration curve of the determined content of the polymerization inhibitor.

4 Reagents and materials

Unless otherwise indicated, the reagents used in this section should be of analytical grade. The water should meet the three water specifications GB/T 6682 regulations.

4.1

pairs - tert-butyl catechol (TBC). content greater than 99%, a melting point of 52 °C ~ 55 °C.

4.2

toluene.

4.3

methanol.

4.4

Sodium hydroxide solution. approximately 10mol/L, 4g of sodium hydroxide was dissolved in 10mL water.

4.5

n-octanol.

4.6

Sodium hydroxide alcohol solution. about 0.15mol/L. 0.75mL amount of sodium hydroxide solution was placed in 25mL of methanol, stirred and maintained Added 0.75mL 25mL n-octanol and water. Solution is stored in a brown bottle, this solution can be used immediately, storage period of two months. To reduce this solution was contacted with air, the solution was dispensed in to clean several small vial.

4.7

TBC stock solution. Weigh 0.500g TBC dissolved in 499.5g of toluene. The solution containing 1000mg/kg of TBC. Storage