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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 12688.1-2019

Replacing GB/T 12688.1-2011

Test method of styrene for industrial use - Part 1: Determination of purity and hydrocarbon impurities - Gas chromatography

工业用苯乙烯试验方法 第1部分：纯度及烃类杂质的测定 气相色谱法

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Foreword

GB/T 12688 "Test method for industrial styrene" is divided into the following parts.

--- Part 1. Determination of purity and hydrocarbon impurities - Gas chromatography;

--- Part 3. Determination of polymer content;

---Part 4. Determination of peroxide content - Titration;

---Part 5. Determination of total aldehyde content - Titration;

---Part 8. Determination of the content of inhibitors (p-tert-butyl catechol) - Spectrophotometric method;

---Part 9. Determination of trace benzene by gas chromatography;

10 Determination of oxygenates - Gas chromatography. This part is the first part of GB/T 12688. This part is drafted in accordance with the rules given in GB/T 1.1-2009. Tests for industrial use of styrene - Part 1 . Determination of purity and hydrocarbon impurities Gas chromatography. In addition to the editorial changes in this section compared with GB/T 12688.1-2011, the main technical changes are as follows:

--- Increased the type of measurable impurities and adjusted the measurement range (see 1.2, 4.2, Figure 1, Figure 2,.2011 edition of 1, 4.2, Figure 1, figure 2);

--- Normative references have been added to GB/T 6678 (see Chapter 2, Chapter 2 of the.2011 edition);

---Modified the requirements of the gas chromatograph (see 5.1,

5.1 of the.2011 edition);

---Modified typical chromatographic operating conditions (see Table 1, Table 1 of the.2011 edition);

--- Modified formula (1) [see formula (1),.2011 version of formula (1)];

1 Scope

GB/T 12688.1-2019 is the Chinese national standard on test method of styrene for industrial use - part 1: determination of purity and hydrocarbon impurities - gas chromatography, in the field of chemical technology. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 4 June 2019 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 May 2020. Classification: ICS 71.080.15, CCS G16. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This part of GB/T 12688 specifies the purity of industrial styrene and gas chromatography for the determination of hydrocarbon impurities. This section applies to purity (mass fraction) of not less than 99%, hydrocarbon impurity concentration (mass fraction) ranging from 0.001% to 1.000% Determination of styrene.

Note. Typical hydrocarbon impurities include. ethylbenzene, p-xylene, m-xylene, o-xylene, cumene, n-propylbenzene, m-ethylbenzene, p-toluene, propenylbenzene, alpha-Methylstyrene, m-methylstyrene, p-methylstyrene, phenylacetylene and other impurities.

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.

GB/T 3723 General rules for sampling safety of industrial chemical products General rules for sampling

GB/T 6678 chemical products

GB/T 6680 Liquid Chemical Product Sampling General

GB/T 8170 Numerical Rounding Rules and Representation and Determination of Limit Values

3 Method summary

3.1 Internal standard method Under the conditions specified in this section, an appropriate amount of the sample containing the internal standard is injected into a chromatograph equipped with a hydrogen flame ionization detector (FID). Styrene and hydrocarbon

impurity components are effectively separated on the column, and the peak areas of all peaks except the styrene component are measured, and each is calculated by internal standard method. The content of hydrocarbon impurities. The total amount of hydrocarbon impurities was subtracted from 100.00 to calculate the purity of styrene.

3.2 Corrected area normalization method Under the conditions specified in this section, an appropriate amount of sample is injected into a chromatograph equipped with a hydrogen flame ionization detector (FID). Styrene and hydrocarbon The impurity-like components are effectively separated on the column, and the peak areas of all the peaks are measured to measure the corrected area normalization method or the effective carbon number correction surface. The product normalization method calculates the content of each component.

4 Reagents and materials

4.1 Internal standard. n-heptane, toluene or other suitable compound, the purity should be greater than 99% (mass fraction).

4.2 Standard reagents. ethylbenzene, p-xylene, m-xylene, o-xylene, cumene, n-propylbenzene, m-ethylbenzene, p-ethylbenzene, propylene benzene,