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

GB/T 11446.8-2013

Replacing GB/T 11446.8-1997

Test method for total organic carbon in electronic grade water

电子级水中总有机碳的测试方法

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Foreword

The expected structure of GB/T 11446 is as follows: - GB/T 11446.1 Electronic grade water; - GB/T 11446.2 (To be determined); - GB/T 11446.3 Generic rules for test methods of electronic grade water; - GB/T 11446.4 Test method for resistivity of electronic grade water; - GB/T 11446.5 Test method for measuring trace metals in electronic grade water by atomic absorption spectrophotometry; - GB/T 11446.6 Test method for SiO₂ in electronic grade water by spectrophotometer; - GB/T 11446.7 Test method for trace anion in electronic grade water by ion chromatography; - GB/T 11446.8 Test method for total organic carbon in electronic grade water; - GB/T 11446.9 Test method for particles in electronic grade water by instrument; - GB/T 11446.10 Test method for total bacterial count in electronic grade water by membrane filters. This part is Part 8 of GB/T 11446. This part was drafted in accordance with the rules given in GB/T 1.1-2009. This part replaces GB/T 11446.8-1997 "Test method for total organic carbon in electronic grade water". Compared with GB/T 11446.8-1997, this Part mainly has the following changes. - ADD "

1 Scope

GB/T 11446.8-2013 is the Chinese national standard on test method for total organic carbon in electronic grade water, in the field of electronics. 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 31 December 2013 by the General Administration of

Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 15 August 2014. Classification: ICS 31.030, CCS L90. 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 11446 specifies the test method for total organic carbon, in electronic grade water. This Part applies to the determination of total organic carbon, in electronic grade water.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB/T 603-2002 Chemical reagent - Preparations of reagent solution for use in test method

GB/T 11446.1-2013 Electronic grade water

3 Terms and definitions

The terms and definitions as defined in GB/T 11446.3-2013, as well as the following terms and definitions, apply to this document.

3.1 Total organic carbon; TOC The total amount of carbon in the water, in the form of various organic matter. It includes organic matter, that is easily oxidized by general strong oxidants AND organic matter, which needs to be oxidized by special methods.

4 Principles of the method

Add phosphoric acid to the water sample. Control the pH to be not greater than

2. Then the inorganic carbonate will be decomposed into carbon dioxide.

5 Disturbing factors

5.1 The solution is easy to be contaminated, during storage. The standard solution shall be prepared before use. During use, it is better to cover with nitrogen.

5.3 Whether the laboratory air is purified or not, has a greater impact on the analysis results. The measurement shall be performed, in a grade 100 clean room.

6 Reagents

6.1 Blank water. EW-I electronic grade water, which is specified in GB/T 11446.1-2013.

6.2 Sodium persulfate (or potassium persulfate). High purity.

6.3 Phosphoric acid (85%). Excellent pure grade.

6.5 Organic carbon standard solution. Weigh 1.0000 g of acetic acid or 0.8500 g of potassium hydrogen phthalate. Dissolve it in water, which has no carbon dioxide AND is removed of organics. Make the volume reach to 1 L. This solution contains 400 mg/L carbon.

7 Measuring instruments

7.1 Total organic carbon tester, including carbon dioxide gas detector and recorder.

7.2 Construct a device, for preparing carbon dioxide-free water, in accordance with the provisions of GB/T 603-2002.

7.3 Sample injector. 5 μ L, 10 μ L, 50 μ L, etc.

8 Operation procedures

8.1 Selection of test conditions After the instrument is turned on and warmed up for 30 minutes, select the working parameters, to make the instrument in a stable working state.

8.2 Drawing of working curve Respectively take the standard solution of inorganic carbon and organic carbon. Prepare a mixed standard solution of

0.05 mg/L ~

1.00 mg/L inorganic carbon and organic carbon.

8.3 Water sample analysis Analyze the water sample, according to the steps specified in 8.2. According to the measured peak height, check the content of inorganic carbon and total carbon, in the water sample, from the corresponding working curve.

9 Precision and accuracy

For more than 10 carbon standard solutions, which have a concentration of 100 μ g/L, make determination, respectively. The relative standard deviation is less than 10%; the recovery rate is between 80% and 120%.