



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

GB/T 17650.2-2021

**Test on gases evolved during combustion of materials from
cables or optical fiber cables - Part 2: Determination of acidity
(by pH measurement) and conductivity**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document is the second part of GB/T 17650 "Test methods for gas released when materials taken from cables or optical cables burn".

GB/T 17650 has released the following parts.

---Part 1. Determination of the total amount of halogen acid gas;

---Part 2. Determination of acidity (measured by pH) and conductivity.

This document replaces GB/T 17650.2-1998 "Test method for gas released when materials taken from cables or optical cables burn, Part 2

Part. Measuring the acidity of gas by measuring the pH value and conductivity", compared with GB/T 17650.2-1998, except for structural adjustment and editing

In addition to the changes, the main technical changes are as follows.

---Added terms and definitions about pH and conductivity (see Chapter 3);

---Added the safety requirements during gas absorption (see 5.1 Note 2 and 7.3);

---Modified the size requirements (see 5.2, 5.3, 5.4, 3.1, 3.2, 3.3 in the.1998 edition);

---The requirements for the pH value and conductivity of the water have been modified, and the maximum inner diameter and the maximum inner diameter of the end of the glass tube inserted into the washing bottle have been added.

The inner diameter requirements of glass bottles that meet the requirements for bottle washing use (see 5.5, 3.4 in the.1998 edition);

---Modified the formula expression method of air flow in the tube and the units of air flow and air velocity, and added different tube inner diameters

The air flow range (see 5.6, 3.5 in.1998 edition);

---Modified the requirements of balance accuracy (see 5.7, 3.6 in.1998 edition);

---Added the requirements for laboratory glassware (see 5.8);

---Modified the conductivity meter range (see 5.10, 3.6 in.1998 edition);

---Modified the requirements for sample preparation (see 6.1, Chapter 5 of the.1998 edition);

---The calculation formula for the mass of the sample has been added (see 6.3);

---Modified the heating program (see 7.3, Chapter 6 of the.1998 edition);

---Modified the cleaning procedure (see 7.4, Chapter 6 of the.1998 edition);

---Modified the solution temperature during the pH value and conductivity test (see 7.5, 7.2 of the.1998 edition);

---Modified the test result evaluation (see Chapter 8, Chapter 8 of the.1998 edition);

---Modified Figure 1, Figure 2, Figure 3, Figure 4, Figure 5 (see Figure 1, Figure 2, Figure 3, Figure 4, Figure 5, .1998 edition of Figure 1, Figure 2, Figure 3, Figure 4, Figure 5);

---Modified the recommended performance requirements (see Appendix A, Chapter 9 of the.1998 edition).

The translation method used in this document is equivalent to the IEC 60754-2.2019 "Test Methods for Gas Released When Materials Taken from Cables are Burned".

Part 2.Determination of acidity (measured by pH) and conductivity.

The Chinese documents that have consistent correspondence with the normatively cited international documents in this document are as follows.

---GB/T 6682-2008 Analytical laboratory water specifications and test methods (ISO 3696.1987, MOD);

---GB/T 12806-2011 Laboratory glassware single mark volumetric flask (ISO 1042.1998, NEQ).

This document has made the following editorial changes.

---In order to be consistent with the existing standard series, the standard name is changed to "The test method for the gas released when the material taken from the cable or optical cable burns.

Method Part 2.Determination of acidity (measured by pH) and conductivity.

Introduction

Cable or optical cable users are very concerned about the amount of acid gas released when the insulation, sheath and other materials of the cable or optical cable burn, because this

Acidic gases can cause extensive damage to electrical and electronic equipment that are not involved in a fire. Therefore, it is necessary to develop a measuring cable or

The approved method for the amount of acid gas released when the material of the optical cable is burned.

GB/T 17650 provides a method to determine the amount of acid gas

Or reach an agreement on the limit value of the optical cable specification. Since this test is not carried out on the entire cable or optical cable sample, the evaluation of the degree of harmfulness

The determination must also take into account the actual volume of the material that constitutes the cable or optical cable.

The recommended pH and conductivity recommended values can only be regarded as an indication, because the relationship between corrosion and these two parameters may not be able to cover

Include all materials.

The purpose of GB/T 17650 is to establish a test method standard for gas released when materials taken from different cables or optical cables burn.

It consists of the following 3 parts.

---Part 1.Determination of the total amount of halogen acid gas. The purpose is to establish a combustion release suitable for materials taken from different cables or optical cables.

Test method for the total amount of halogen acid gas in the exhaust gas;

---Part 2.Determination of acidity (measured by pH) and conductivity. The purpose is to establish

Test methods for acidity (measured by pH) and electrical conductivity of gases released when materials are burned;

---Part 3.Determination of low-level halogen by ion chromatography (planned). The purpose is to establish suitable for different cables or optical cables

The test method for the release of low-content halogen in the gas when the material burns.

The test equipment in Part 1 and Part 2 of this document is basically the same, but it should be noted that the test procedures are quite different.

When the material taken from the cable or optical cable burns

Test method for released gas

Part 2.Acidity (measured with pH) and

Determination of conductivity

1 Scope

This document specifies the acidity of the gas dissolved in the aqueous solution by measuring the material on the cable or optical cable components during the combustion process

(pH) and electrical conductivity, to determine its potential corrosive devices and procedures.

The method specified in this document is suitable for testing the various components of cables or optical cables. Gives the weights for calculating the combination of materials in the cable or optical cable

Value formula. This method can verify the relevant requirements of each component in the cable or optical cable structure specified in the cable or optical cable standard.

The simplified method listed in this document is only to prove that each component meets the performance requirements specified for quality control purposes.

Note 1.The relevant cable or optical cable standard should specify which components in the cable or optical cable should be tested, and which calculation method should be used in case of dispute

(See Chapter 8).

Note 2.This method can be used to test the materials used in the production of cables or optical cables, but it is not appropriate to declare the performance of cables or optical cables based on such a test.

Note 3.The term "cable" in this document refers to all insulated metal conductor cables that transmit energy or signals.