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GB/T 16701-2010

Replacing GB/T 16701.2-1996

Methods for measuring the thermoelectric force of noble metal and base matal thermocouple wires

贵金属、廉金属热电偶丝热电动势 测量方法

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Foreword

This standard replaces GB/T 16701.1-1996 "thermocouple material test methods - Part 1. precious metal thermocouple wire measuring thermal emf Volume method "and GB/T 16701.2-1996" test methods for thermocouple materials - Part 2. metal thermocouple wire thermal EMF measurement method". This standard and GB/T 16701.1-1996 and GB/T 16701.2-1996 compared, in addition to editing, text, revised format on the outside, The main changes are as follows:

--- Increasing the terms and definitions of comparative law;

--- Remove the appendix about the test data recording table. Measurement methods in the precious metal thermocouple wire thermal emf.

--- Measurement temperature range of 300 °C ~ 1600 °C;

--- Measuring point temperature to the freezing point of aluminum (660.323 °C) in place of antimony freezing point (630.63 °C);

--- B-type thermocouple wire temperature detection point is amended as. 1100 °C, 1300 °C, 1500 °C;

--- Increased S, R, B-type standard grade thermocouple wire temperature detection point and the selection criteria for the corresponding provisions;

--- The high-temperature tube furnace length test is amended as 600mm, mounted on the back of the furnace provided B-type thermocouple wire insertion depth is amended as 300mm;

--- Increased S, R and B grade standard dual wire annealing time and temperature stability. In the metal thermocouple wire thermal EMF measurement methods.

--- Reference pure platinum wire require modification to its average resistance temperature coefficient in the temperature range of 0 °C ~ 100 °C should >=0.003920;

--- Tubular axial test furnace temperature field changed to a uniform temperature on the highest center of the field test and the geometric center of the furnace along the axis

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should not exceed deviate 10mm, and an increase in provisions radial temperature field;

--- Increasing the detection stage I grade thermocouple wire should not be less than first-class standard platinum and rhodium 10 - platinum thermocouple requirements;

--- In tying the request to cancel the provisions of the count, and revised as follows: The total number of thermocouples including standards, that should be tied into bundles to meet Size and temperature field tubulars test furnace requirement is appropriate. Appendix A of this standard and Appendix B is an informative annex. The standard proposed by the Machinery Industry Federation. The standard instrument functional materials by the National Standardization Technical Committee (SAC/TC419) centralized. This standard is drafted by: Chongqing Instrument Materials Research Institute. Participated in the drafting of this standard. Ningbo Ao Kawasaki Automation Instrumentation Co., Ltd., China Testing Technology Research Institute, Shaoxing Chunhui automation Instrument Co., Ltd. Kunshan Wantong Instrument Materials Co., Ltd., Chongqing Sichuan Instrument seventeen Co., Ltd., Chongqing Sichuan Instrument Automation Co., Ltd. Metallic Functional Materials Branch, Changzhou Lucheng Albert Alloy Factory, Jiangsu Huaxin Alloy Co., Ltd., Yueqing City, east China Factory, Anhui Xin National Instrument Table Ltd., Anhui days Kang (Group) Co., Ltd., Anhui Rand Group Co., Ltd., a limited liability Baiyin Copper northwest Any company, Liaoning Provincial Institute of Metrology, Shanghai Jia Ling Electronic Technology Co., Ltd., Kunming generous Automatic Control Technology Co., Ltd., Texas group Alloys Ltd. force. The main drafters of this standard. WU Shan, Tang Rui, He Ying Lun Sun Jiong, Fu Zhiyong, Zou Hua, I was big, Kang Wenjie Wan Wei Jian, Wang Bowei, Yuan Qin Hua, Wu Xinghua, Pan hundred, more than step Zhou, Yin Shing House, Yang Yonggang, Housu Lan, Wang Qin, Li Fuhong tension group. This standard replaces the standards previously issued as follows:

--- GB/T 16701.1-1996; GB/T 16701.2-1996. Precious metals, metal thermocouple wire Thermal EMF Measurement methods

1 Scope

GB/T 16701-2010 is the Chinese national standard on methods for measuring the thermoelectric force of noble metal and base matal thermocouple wires, in the field of metrology and measurement. 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 1 December 2010 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 1 May 2011. Classification: ICS 17.200.20, CCS N05. 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,

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which is delivered complete in English translation.

This standard specifies the method for measuring comparative law precious metals and metal thermocouple wire thermal EMF. This standard applies to indexing number is S, R and B of the precious metal thermocouple wire (hereinafter referred to as S-type, R-type and B-type thermocouple wire) in 300 °C ~ 1600 °C thermal EMF measurements and sub-degree temperature range within each section is K, T, E, J and N metal thermocouple wire (to Hereinafter referred to as K-type, T-type, E type, J-type, N-type thermocouple wires) thermal emf measurements in -196 °C ~ 1200 °C temperature of each range. For other types of precious metals, metal thermocouple wires may also refer to adoption. This standard does not apply to material sheathed thermocouple thermal emf Measurement.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 1598 platinum and rhodium 10 - platinum thermocouple wire, platinum and rhodium 13 - platinum thermocouple wire, platinum and rhodium 30 - 6 platinum and rhodium thermocouple wires

GB/T 2614 nickel-chromium - nickel silicon thermocouple wire

GB/T 2903 copper - copper-nickel (constantan) thermocouple wire

GB/T 4993 nickel-chromium - copper-nickel (constantan) thermocouple wire

GB/T 4994 iron - copper-nickel (constantan) thermocouple wire

GB/T 17615 Ni-Cr-Si - Ni-Si-Mg thermocouple wire

JB/T 6819.2 meter material terms. Temperature Materials

3 Terms

JB/T 6819.2 and established the following terms and definitions apply to this standard.

3.1 Tolerance tolerance When the thermocouple reference junction temperature of 0 °C junction temperature is measured for a set temperature, the measured actual thermal emf - temperature relationship Departing from the indexing table at the temperature point nominal value of the maximum allowable range.

3.2 Comparative Law comparetestmethods In a constant temperature, indicating the value of the standard value to the measured thermocouple indication determined by comparing

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the actual value of the measured thermocouple.

4 Principle of the method

4.1 Bipolar Comparative Law Bipolar connection line comparison of FIG 1, FIG 2.

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