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

GB/T 11297.10-2015

Replacing GB 11297.10-1989

Test method for Curie temperature of pyroelectric materials

热释电材料居里温度 T_c 的测试方法

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Foreword

This section drafted in accordance with GB/T 1.1-2009 given rules. This Part replaces GB/T 11297.10-1989 "Test methods of pyroelectric material Curie temperature T_c ." This portion GB/T 11297.10-1989 compared to the main technical changes are as follows:

- Modify the scope of the material (see Chapter 1);
- Modify the capacitance measuring instruments and measuring the maximum permissible error (see Chapter 6, 1989 Version 3.2.1);
- Modify the thermometer (see Chapter 6, 1989 Version 3.2.2);
- Modifies the data recording mode, with "at intervals not greater than 0.1 °C recorded" instead of the original standard "point by point record" (see Chapter 7, 1989 edition 3.4);
- Remove the CT curve automatic delineation methods and transmission circuit test methods (see 1989 edition Appendix A and Appendix B). Please note that some of the content of this document may involve patents. Release mechanism of the present document does not assume responsibility for the identification of these patents. This part is proposed by the Ministry of Industry and Information Technology of the People's Republic of China. This part of the jurisdiction of the Ministry of Industry and Information Technology Institute of Electronics Standardization. This section is drafted. Shanghai Institute of Ceramics. The main drafters of this section. Cao Fei, Yao Chunhua, Dong Xianlin, Wang root water, Wang age. This part of the standard replaces the previous editions are.
- GB/T 11297.10-1989. Pyroelectric materials Curie temperature T_c of the test method

1 Scope

GB/T 11297.10-2015 is the Chinese national standard on test method for curie temperature of pyroelectric materials, 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 2015 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 July 2016. Classification: ICS 31.020, 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 section provides pyroelectric ceramics, crystal and organic materials Curie temperature (T_c) measurement method. This section applies to the measurement of lead titanate, lead zirconate titanate, barium strontium titanate, tantalum scandium acid pyroelectric ceramic material such as lead and lead magnesium niobate, lithium tantalate, Three glycine sulfate group, etc., pyroelectric crystal material Curie temperature (T_c), is also applicable to other similar measure ceramics, crystal and organic pyroelectric Dielectric material Curie temperature.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document. SJ/T 11067 infrared detecting material semiconductor optoelectronic materials and pyroelectric materials commonly used terminology

3 Terms and Definitions

Terms and definitions SJ/T 11067 apply to this document defined.

4 Measuring principle

At the Curie temperature, some of the physical properties of the pyroelectric material occurs abnormal changes, one of which is the dielectric constant of a peak. because This measure a dielectric constant corresponding to the peak temperature, the material can be determined Curie temperature (T_c). This section is a precision LCR meter at a frequency Rate in certain cases, the measured pyroelectric material sample capacitance (C) with temperature (T) increases varies CT curve which corresponds to the peak The temperature is the Curie temperature of the material. Test shown in Figure 1. For some materials, as the temperature changes, the plurality of the dielectric constant appears Peak number, compare the peak corresponding to high and low temperature, the maximum temperature of the Curie temperature of the material.

5 Sample

Test samples shall meet the following requirements.

- a) an area of $10\text{mm}^2 \sim 50\text{mm}^2$, the thickness is $0.1\text{mm} \sim 1.0\text{mm}$ square or round sample;
- b) Specimens shall be finely ground or polished surfaces should be smooth, clean, some materials having a solution rational, if cleavage formation, may be Any processing;
- c) both surfaces of the sample should cover the whole metal electrode such as silver electrode;
- d) If the sample is a pyroelectric crystal specimen should be perpendicular to the pyroelectric crystal axis cutting.

6 Apparatus and equipment

This test applies to equipment and instruments as follows:

- a) micrometer. measurement error is less than $\pm 0.01\text{mm}$ thickness gage measurement sample and the electrode area;