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

GB 3137-1982

**Testing method for electrical property of tantalum powder
(English Translation)**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 3137-2007 "Test method for electrical properties of tantalum powder". Compared with GB/T 3137-2007, this standard the main technical changes outside the sexual modification are as follows.

- Added normative references (see Chapter 2);
- Increased sample requirements (see Chapter 6);
- Deleted the electrical performance test method of tantalum powder for FTA42 capacitors, added FTA200K, FTA170K, FTA150K, Electrical performance test method of tantalum powder for FTB400 and FTB85 capacitors (see Chapter 7, Chapter 5 of the 2007 edition);
- Increased the control range of densities of different grades of tantalum powder (see 7.2.1);
- Added the enabling operation method (see 7.5.6);
- Removed the breakdown voltage test method of tantalum powder for FTA42 capacitors in Appendix A, added FTA150K, FTA120K, FTA100K, FTA800, FTB400, FTB85 capacitor tantalum powder breakdown voltage test method (see A.3.2, 2007 version A.4.2);
- Increased requirements for compact diameter, compaction density and sintering conditions (see A.3.2);
- Amend the "heating solution to 85 °C" in Appendix A to "when heating the solution to the temperature specified in Table A.1" (see A.3.5, 2007 edition A.4.5).

This standard is proposed by China Nonferrous Metals Industry Association.

This standard is under the jurisdiction of the National Nonferrous Metals Standardization

Technical Committee (SAC/TC243).

This standard was drafted. Ningxia Dongfang Tantalum Co., Ltd., Zhuzhou Cemented Carbide Group Co., Ltd., Beijing 718 Friendship Electronics limited liability company.

1 Scope

This standard specifies the principles, reagents and materials, instruments and equipment, samples, test procedures, measurement conditions, and tests of the electrical properties of tantalum powder.

Data processing and test reports.

This standard applies to the inspection of electrical properties of tantalum powder for capacitors.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

YS/T 573 Tantalum powder

3 Principle

The tantalum powder is shaped and sintered into a capacitor anode compact. The compact is placed in a phosphoric acid electrolyte and anodized to form a surface with an anodic oxide film with unidirectional conductivity with a certain dielectric constant. This oxide film is used as a dielectric in a capacitor. Anodized billet the block is placed in the measuring solution electrolyte, the oxidized green block is connected to the positive electrode, and the metal in contact with the electrolyte is used as the negative electrode, which is connected to the measuring instrument to measure its leakage.

Current, capacitance, and loss values.

4 Reagents and materials

Reagents identified as superior purity should be used in the analysis.

4.1

Phosphoric acid. $\rho = 1.69\text{g/mL}$.

4.2

Sulfuric acid. $\rho = 1.84\text{g/mL}$.

4.3

Deionized water. The conductivity is less than 0.7 $\mu\text{S}/\text{cm}$.

4.4

Tantalum wire. 0.2mm ~ 0.6mm in diameter.

4.5

Tantalum crucible.

4.6

Test cup.

5.1 Instrument

5.1.1

Electronic balance. The division value is 1mg.

5.1.2

Electronic micrometer.

5.1.3

Multimeter. Class 1.5.

5.1.4

Conductivity meter.

5.1.5

Capacitive bridge.

5.1.6

High-precision resistance measuring instrument.