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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 41104.1-2021

Solder wire, solid and flux cored - Specification and test methods - Part 1: Classification and performance requirements

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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"

drafted:

This document is part 1 of GB/T 41104 "Specification and Test Methods for Solid and Flux-cored Solder Wires", GB/T 41104 has been issued

The following parts are distributed:

--- Part 1: Classification and performance requirements;

--- Part 2: Determination of flux content;

--- Part 3: Wetting balance test method for the efficacy of flux-cored solder wire:

This document is modified using ISO 12224-1:1997 "Specification and test methods for solid and flux-cored solder wires - Part 1: Classification and properties

can request":

Compared with ISO 12224-1:1997, this document has many structural adjustments: Appendix A lists this document and ISO 12224-1:1997:

The chapter number comparison list:

The technical differences between this document and ISO 12224-1:1997 and their reasons are as follows:

--- Regarding normative reference documents, this document has made adjustments with technical differences to adapt to the technical conditions of our country and the circumstances of the adjustment:

The situation is reflected in Chapter 2 "Normative References", and the specific adjustments are as follows:

* Replace ISO 9453:1990 with GB/T 3131 and GB/T 20422 modified to adopt international standards (see 4:1, 5:1, 6:1,

7:1);

* Replace ISO 9454-1:1990 with GB/T 15829 modified to adopt international standards (see 4:2, 4:3, 5:2, Table D:1);

* Replace ISO 9455-10 with GB/T 38265:10 modified to adopt international standard (see 7:5, Table D:1);

* Replace ISO 9455-15:1996 with GB/T 38265:15 modified to adopt international standard (see 7:6, Table D:1);

* Replace ISO 12224-2 with GB/T 41104:2 modified to adopt international standards (see 7:2, Table D:1);

* Deleted references to international standards ISO 9455-12:1992, ISO 10564:1993;

* Added reference to GB/T 686 (see B:3:1);

* Added reference to GB/T 11415 (see B:4:3);

* Added reference to ISO 9455-3 (see B:5:1);

* Added reference to HG/T 2892 (see B:3:2);

* Added reference to ISO 9455-6 (see B:5:1):

---Added an example of a solid solder wire type of lead-free solder alloy that meets the requirements of this document and an example of a solid solder wire that meets the requirements of this document

Examples of flux-cored solder wire types for lead-free solder alloys (see Chapter 4) for ease of use in standard applications:

--- Updated the flux coding method to be consistent with the provisions of GB/T 15829-2021:

--- Added the test method for "chemical composition analysis" (see 7:1), which is to examine the solder alloys in solid and flux-cored solder wire products

Important basis for ingredients:

--- Deleted ISO 12224-1:1997 Applicability, minimum spreading area or minimum spreading rate of wetting efficacy of flux-cored solder wire

and other requirements, its scope of applicability is only typical tin-lead solder, not extensive:

--- Deleted 4:6:1 "Steel Corrosion Test" in ISO 12224-1:1997, and the standard on its test

method has been abolished:

--- Added the test method of "flux uniformity and continuity" (see 7:3), which is an important basis for testing the performance of flux products:

The following editorial changes have been made to this document:

--- The test methods for performance in Chapter 4 of ISO 12224-1:1997 are separately incorporated into Chapter 7 "Test Methods" of this document;

--- Deleted the informative Appendix D;

--- Added references:

Please note that some content of this document may be patented: The issuing agency of this document assumes no responsibility for identifying patents:

Introduction

Solid and flux-cored solder wires are used as the base material in the soldering process and have a decisive influence on the quality of soldered joints:

The strong foundation project being implemented in my country, the national science and technology major project "core electronic devices, high-end general-purpose chips and basic software products" and

The core electronic devices, high-end chips and integrated circuit complete sets of technology in the "Special Project on VLSI Manufacturing Equipment and Complete Sets of Technology"

In the research and development of technology, solid and flux-cored solder wires are the key basic materials, and the formulation of standards for their products and test methods is of great significance:

Since:2001, my country has successively promulgated and implemented "Tin-Lead Soldering Materials", "Lead-Free Soldering Materials", "Solder Flux Classification and Performance Requirements" and "Solder Soldering Materials":

Solid and flux-cored solder wire is an important product in soldering material, and it is reliable for the environment and solder joints:

Performance and application are critical: GB/T 41104 "Specification and test methods for solid and flux-cored solder wires" is a general product for solder wires:

The standard for products and test methods is intended to consist of the following parts:

--- Part 1: Classification and performance requirements;

--- Part 2: Determination of flux content;

--- Part 3: Wetting balance test method for the efficacy of flux-cored solder wire:

This document is the product standard for solid and flux-cored solder wire, and is the technical basis for the production, inspection, and use of the product:

The main classification and performance indicators of the products are introduced to improve the quality of solid and flux-cored solder wire products in my country:

Specification and test methods for solid and flux cored solder wires

Part 1: Classification and performance requirements

1 Scope

This document specifies the classification and types, performance requirements, sampling methods, test methods, markings, labels and packages of solid and flux-cored solder wires

installation requirements:

This document applies to solid and flux-cored solder wires of tin-lead solder alloys and lead-free solder alloys:

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to

this document:

GB/T 686 Chemical Reagent Acetone (GB/T 686-2008, ISO 6353-2:1983, NEQ)

GB/T 3131 Tin-lead solder

GB/T 11415 Laboratory sintered (porous) filter pore size, classification and grades

GB/T 15829 Soft flux classification and performance requirements (GB/T 15829-2021, ISO 9454-1:2016, ISO 9454-2:

2020, MOD)

GB/T 20422 Lead-free solder (GB/T 20422-2018, ISO 9453:2014, MOD)

GB/T 38265:10 Test Methods for Soldering Flux Part 10: Test Method for Wetting Properties and Spreading of Soldering Flux (GB/T 38265:10-

2019, ISO 9455-10:2012, MOD)

GB/T 38265:15 Test Method for Soldering Flux Part 15: Copper Corrosion Test (GB/T