



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

GB/T 41104.3-2021

**Solder wire, solid and flux cored - Specifications and test
methods - Part 3: Wetting balance test method for flux cored
solder wire efficacy**

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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 3 of GB/T 41104 "Specification and Test Methods for Solid and Flux Core Soldering 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 12224-3:2003 "Specification and test methods for solid and flux-cored solder wires - Part 3: Flux-cored soldering

"Wetting Balance Test Method for Filament Efficacy":

Compared with ISO 12224-3:2003, this document has many adjustments in structure: Appendix A lists this document and ISO 12224-3:2003:

The chapter number comparison list:

The technical differences between this document and ISO 12224-3:2003 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 IEC 60068-2-54 (see 6:2) with GB/T 2423:32-2008 which is equivalent to the international standard;
- * Added reference to GB/T 686 (see 5:1);
- * Added reference to HG/T 5344 (see 5:2);
- * Deleted the reference to the International Standard ISO 9454-1;
- * Removed reference to International Standard ISO 9455-16:1998;
- Added "Appendix B (Normative) Technical Requirements for Wetting Balance Test System" to facilitate the application of the standard:

The following editorial changes have been made to this document:

--- 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 serves as the standard for test methods for solid and flux-cored solder wires: The wetting balance method is used to determine the efficacy of flux-cored solder wires:

The method has the advantages of simple operation, strong applicability, accurate and reliable results, etc., and has become an important inspection method in flux-cored solder wire products:

measuring means:

Specification and test methods for solid and flux cored solder wires

Part 3: Wetting balance for the efficacy of flux-cored solder wires

experiment method

1 Scope

This document specifies the wetting balance test method for determining the efficacy of flux-cored solder wire, including principles, reagents, instruments and materials, test procedures

Procedure, test data description, test data processing, test report, etc:

This document applies to the flux cored soldering of tin-lead solder alloys specified in GB/T 3131 and lead-free solder alloys specified in GB/T 20422

filament:

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 2423:32-2008 Environmental testing of electrical and electronic products - Part 2: Test method test Ta: Wetting weighing method can be welded

Sex (IEC 60068-2-54:2006, IDT)

HG/T 5344 Chemical reagent 2-butanone (methyl ethyl ketone)

3 Terms and Definitions

There are no terms and definitions that need to be defined in this document:

4 Principles

Immerse the copper test piece and the flux-cored solder wire in the molten solder bath at the same time:

Flux test: According to Archimedes' principle, the copper specimen is subjected to buoyancy and different surface tensions between the solder, solder and the interface of the specimen:

effect: Record the change data of wetting force and time, calculate the wetting angle θ , wetting speed and overall wetting properties to determine the flux cored solder

The effect of silk:

5 Reagents

5:1 Acetone

Analytical grade reagents that meet the requirements of GB/T 686:

5:2 Methyl ethyl ketone

Analytical grade reagents that meet the requirements of HG/T 5344: