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

GB/T 38265.13-2021

**Test methods for soft soldering fluxes - Part 13: Determination
of flux spattering**

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Standardization Administration**

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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 13 of GB/T 38265 "Solder Flux Test Methods": GB/T 38265 has released the following parts:

- Part 1: Gravimetric method for determination of non-volatile matter content;
- Part 2: Boiling point method for the determination of non-volatile matter content;
- Part 5: Bronze mirror test;
- Part 10: Test methods for the spreading of the wetting properties of solder fluxes;
- Part 11: Solubility of flux residues;
- Part 13: Determination of flux spatterability;
- Part 14: Evaluation of the adhesiveness of flux residues;
- Part 15: Copper corrosion test;
- Part 16: Wetting balance method for wetting properties of solder fluxes:

This document is modified and adopted ISO 9455-13:2017 "Test methods for solder fluxes - Part 13: Determination of flux spatterability":

The technical differences between this document and ISO 9455-13:2017 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:

* Deleted ISO 9454-1, ISO 9453;

* ISO 3574 is replaced by GB/T 5213 (see 5.2):

The following editorial changes have been made to this document:

--- Modify the standard name to "Flux Test Method Part 13: Determination of Flux Sputtering":

--- Added references as informative citations for ease of application:

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

Introduction

As a key supporting material in the soldering process, solder flux has a decisive influence on the quality of soldered joints:

In the implementation of the strong foundation project, the national science and technology major project "core electronic devices, high-end general-purpose chips and basic software products" and "super large-scale

Technology research and development of core electronic devices, high-end chips and integrated circuit complete sets of technology in the "Special Project for Molded Integrated Circuit Manufacturing Equipment and Complete Sets of Technology"

Among them, solder flux is the key basic material, and it is of great significance to formulate the test method standard for its quality performance evaluation:

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":

As an important component of the solder, solder flux is not only important for the solderability and processability of the solder

It is also critical to the environment, reliability of solder joints and applications: GB/T 38265 "Solder Flux Test Method" is a

General test method standard, it is proposed to consist of the following parts:

--- Part 1: Gravimetric method for determination of non-volatile matter content;

- Part 2: Boiling point method for the determination of non-volatile matter content;
- Part 3: Determination of acid value by potentiometric titration and visual titration;
- Part 5: Bronze mirror test;
- Part 6: Determination of halide (excluding fluoride) content;
- Part 8: Determination of zinc content;
- Part 9: Determination of ammonia content;
- Part 10: Test methods for the spreading of the wetting properties of solder fluxes;
- Part 11: Solubility of flux residues;
- Part 13: Determination of flux spatterability;
- Part 14: Evaluation of the adhesiveness of flux residues;
- Part 15: Copper corrosion test;
- Part 16: Wetting balance method for wetting properties of solder flux;
- Part 17: Surface insulation resistance comb brush test and electrochemical migration test of flux residues:

The method used in this document is used to qualitatively evaluate the spatterability of the solder flux: This method has the advantages of simple operation, strong applicability, accurate and reliable results, etc:

At present, it has become an important detection method in solder flux products:

Soldering flux test method

Part 13: Determination of flux spatterability

1 Scope

This document specifies the evaluation method for the spatterability of solder flux, including the principle, equipment, test procedures, expression of test results, test report

Announcement and so on:

This document is only applicable to the liquid soldering flux specified in GB/T 15829:

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 5213 Cold-rolled low carbon steel sheet and strip

3 Terms and Definitions

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

4 Principles

Place a certain amount of liquid flux sample on the steel sheet test piece, heat the test piece in the solder bath, and visually inspect the surface of the test piece for softness:

Flux spatterability:

5 Instruments and equipment

5:1 Solder bath

The cross section of the solder bath is rectangular, the size is about 150mmx100mm, it can accommodate at least 4kg of solder, and the liquid level of the solder is soft:

The upper edge of the solder bath is not more than 5mm, and the temperature can be maintained at (400 ± 10) degrees C:

5:2 Specimen

The steel sheet should meet the requirements of GB/T 5213, cut from a 1mm thick non-alloy steel sheet, and the size of the test piece should be softer than the corresponding

The length and width of the solder bath (5:1) are 10 mm larger:

5:3 Silicon carbide abrasive cloth

Silicon carbide emery cloth 180 mesh:

6 Test steps

6:1 Adjust the temperature of the solder bath to (400 ± 10) degrees C, and ensure that the height of the solder liquid level is (4 ± 1) mm lower than the upper edge of the solder bath: