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

GB/T 10574.10-2017

Replacing GB/T 10574.10-2003

**Methods for chemical analysis of tin-lead solders - Part 10:
Determination of cadmium content - Flame atomic absorption
spectrometry and Na₂EDTA titration method**

锡铅焊料化学分析方法 第10部分：镉量的测定 火焰原子吸收光谱法和Na₂EDTA
滴定法

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Foreword

GB/T 10574 "tin-lead solder chemical analysis method" is divided into 14 parts.

- Part 1. Determination of tin content potassium iodate titration;
- Part 2. Determination of the amount of antimony Malachite green spectrophotometry and potassium bromate titration;
- Part 3. Determination of bismuth content by flame atomic absorption spectrometry;
- Part 4. Determination of iron content 1,10-phenanthroline spectrophotometry;
- Part 5. Determination of arsenic; Arsenic antimony molybdenum blue spectrophotometry;
- Part 6. Determination of copper content by flame atomic absorption spectrometry;
- Part 7. Determination of silver content flame atomic absorption spectrometry and potassium thiocyanate potentiometric titration;
- Part 8. Determination of zinc content by flame atomic absorption spectrometry;
- Part 9. Determination of aluminum content by electrothermal atomic absorption spectrometry;
- Part 10. Determination of cadmium content Flame Atomic Absorption Spectrometry and Na₂ EDTA titration;
- Part 11. Determination of phosphorus content crystal violet - vanadium molybdovanadophosphoric acid spectrophotometry;
- Part 12. Determination of sulfur content; high frequency combustion infrared absorption spectrometry;
- Part 13. Determination of antimony, bismuth, iron, arsenic, copper, silver, zinc, aluminum, cadmium, phosphorus and gold content Inductively coupled plasma atomic emission Spectrum method

1 Scope Method

GB/T 10574.10-2017 is the Chinese national standard on methods for chemical analysis of tin-lead solders - part 10: determination of cadmium content - flame atomic absorption spectrometry and Na₂EDTA titration method, in the field of manufacturing engineering. 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 14 October 2017 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 May 2018. Classification: ICS 25.160.20, CCS H13. 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.

1 The measurement range is changed from "0.00002% to 0.0050%" to "0.00005% to 0.0050%";

--- 2003 edition 5.3.1 "added 0.1mL ~ 2.0mL hydrochloric acid (3.1)" to "add 2mL hydrochloric acid (3.2.1)";

--- Buffer solution from acetic acid - sodium acetate solution was modified to hexamethylenetetramine solution (see 4.2.7);

--- Precision from "allowable error" to "repeatability and reproducibility" (see 3.7, 4.6);

--- Calibration Na₂EDTA standard titration solution from cadmium standard solution to lead standard solution (see 4.2.11). This part of the National Non-ferrous Metal Standardization Technical Committee (SAC/TC243) centralized. This section is responsible for the drafting unit. Yunnan Tin Industry Co., Ltd.. Participated in the drafting of this section. Yunnan Tin Group Co., Ltd., China Nonferrous Guilin Institute of Mineral Geology Co., Ltd., Beijing Mining and Metallurgical Research Institute, Kunming Metallurgical Research Institute, Ningbo Exit Inspection and Quarantine, Beijing Nonferrous Metal Research Institute, Zijin Mining Group Co., Ltd. limited company, Yunxiang Mining Co., Ltd. limited liability company. The main drafters of this section. Shi Ruxiang, Chen Zhu Bing, Wang Junfeng, Xu Hua, Qiu Li, Li Min, Yang Chunlin, Zhou deposit, Su Chunfeng, Mary, Liu Yingbo, Yang Yunjin, Li Rong, Liu Zaimei, Zhu Xiaoyan, Zhang Xiao, Liu Ying, Hu Zhenzhen, Xiong Chuanxin, Zhang Songlan, Long Xiujia, Ruan Yingguo, Wu Youcheng, Cold wax spring, Xiao Yue Yong, Zhang Hongling, Wang Yanling. This part replaces the standards previously issued as.

--- GB/T 10574.12-1989;

--- GB/T 10574.10-2003. Tin - Lead solder chemical analysis methods Part 10. Determination of cadmium content flame atomic Absorption spectrometry and Na₂EDTA

titration

2 Normative references

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

GB/T 8012 cast tin-lead solder

3.2.3 Hydrobromic acid (p =

3.2.4 hydrochloric acid - hydrobromic acid mixed acid hydrochloric acid (3.2.1) and hydrobromic acid (3.2.3) and other volume mixing.

3.2.5 Hydrochloric acid (1 1).

3.2.6 Hydrochloric acid (5 95).

3.2.7 Nitric acid (1 2).

3.2.8 Sulfuric acid (1 1).

3.2.9 Cadmium standard storage solution Weigh 0.5000g metal cadmium ($w_{Cd} \geq 99.99\%$) in 200mL beaker, add 20mL nitric acid (3.2.7), cover the watch glass, slightly warm to completely dissolve, wash the watch glass and cup wall with water and cool. Into a 500mL volumetric flask, add 25mL hydrochloric acid (3.2.1), diluted with water to the mark, mix well. 1mL of this solution contains 1mg of cadmium.

3.2.10 Cadmium standard solution A. Pipette 25.00mL standard solution of cadmium (3.2.9) in 250mL volumetric flask, with hydrochloric acid (3.2.6) thin Release to the mark, mix well. 1 mL of this solution contains 100 μg of cadmium.

3.2.11 Cadmium standard solution B. Pipette 25.00mL of cadmium standard solution A (3.2.10) in 250mL volumetric flask, diluted with hydrochloric acid (3.2.6)