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**NONFERROUS METALS INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

YS/T 997.1-2014

**Methods for chemical analysis of antimony-doped tin oxide.
Part 1: Determination of tin content. Potassium iodate
titrimetric method**

掺锑二氧化锡化学分析方法 第1部分：锡量的测定碘酸钾滴定法
(English Translation)

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Table of Contents

Foreword
1 Scope
2 Method summary
3 Reagents

Foreword

YS/T 997 "Methods for chemical analysis of antimony-doped tin dioxide," is divided into three parts.

- Part 1. Determination of tin content potassium iodate titration;
- Part 2. Determination of antimony content cerium sulfate titration;
- Part 3. Determination of chlorine content of thiocyanate mercury spectrophotometry.

This section YS/T Part 1 997.

This section drafted in accordance with GB/T 1.1-2009 given rules.

The non-ferrous metal part by the National Standardization Technical Committee (SAC/TC243) centralized.

This section is drafted. Guangxi metallurgical products Quality Supervision, Inspection Station, Liuzhou one hundred tough special Advanced Materials Co., Ltd., Guangxi Analysis and Testing Center Zhuang Autonomous Region, Guilin University of Technology, Nanning Abacus detection technology limited liability company.

1 Scope

YS/T of the provisions of the section 997 determination of antimony doped tin oxide in the amount of tin.

This section applies to the determination of antimony tin oxide doped with tin in the amount of measurement range (mass fraction) 55.00% - 78.50%.

2 Method summary

After sodium oxide sample melted in hydrochloric acid solution was added reduced iron, antimony reduced to elemental separated and removed, with aluminum tin reduced to two Price, starch as the indicator for the end of bluish titration with potassium iodate standard

solution titration test solution.

3 Reagents

Unless otherwise indicated, this part of the reagents were analytical reagent, the water of GB/T 6682 in the secondary water.

3.1

sodium peroxide.

3.2

reduced iron.

3.3

metal tin (Sn mass fraction $\geq 99.99\%$).

3.4

aluminum (Al mass fraction $\geq 99.5\%$), thickness of less than 0.1mm.

3.5

Sodium hydroxide solution (25g/L).

3.6

hydrochloride (11).

3.7

potassium iodate standard titration solution.

--- Preparation. Weigh 3.6g of potassium iodate dissolved in 500mL of water, add 18g potassium iodide and 2g of anhydrous sodium carbonate was dissolved, diluted with water to 2000mL, shake.

--- Calibration. Weigh 0.1200g metal tin (3.3) placed in 300mL conical flask, 2g ~ 3g reduced iron (3.2), 100mL of hydrochloric acid (3.6), the flask was connected to the reduction apparatus (FIG. 1). Low-temperature heating tin dissolved, add 20mL water, add 2.0g ~ 2.5g folded into small pieces of aluminum foil (3.4), continuous shaking the flask to dissolve most of the aluminum, and heating was continued to boil test solution to produce large bubbles 1min. Under the protection of carbon dioxide gas, the flasks were placed in cold water to cool to room temperature. Remove the cone Vial, immediately join 5mL starch solution (3.8), titration with potassium iodate standard solution (3.7) titration test solution was light blue as the end point.

While doing the blank test.

The actual concentration of potassium iodate standard solution titration according to formula (1).

$59.355 \times (V_1 - V_0) \times 10^{-3}$ (1) where.

C --- the actual concentration of potassium iodate standard titration solution, expressed in moles per liter (mol/L);

m₀ --- metal tin in grams (g);

When V₁ --- calibration standard solution titration tin volume of potassium iodate standard titration solution consumption in milliliters (mL);

V₀ --- the calibration, the volume of potassium iodate titration reagent blank standard titration solution consumption in milliliters (mL);

59.355 --- tin ($1/2\text{Sn}$) molar mass in grams per mole (g/mol).