

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

SN/T 1324-2003

**Determination of tin coating mass of electrolytic tinplate for
import and export -- Coulometric test method**

进出口电镀锡薄钢板镀锡量试验方法 电量法

(English Translation)

Issued on: August 18, 2003

Implemented on: February 1, 2004

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People Republic of China**

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Foreword

Appendix A of this standard is a normative appendix.

This standard is proposed and managed by the National Certification and Accreditation Administration.

This standard was drafted. Guangdong Entry-Exit Inspection and Quarantine Bureau of the People's Republic of China.

1 Scope

This standard specifies the test method for determining the tin plating amount of tin-plated steel sheets for import and export.

This standard applies to the total tin plating amount of electroplated tin steel sheets, the tin plating amount of pure tin layers and the tin plating amount of alloy layers.

2 Normative references

The terms in the following documents become the terms of this standard by reference to this standard. All dated references, followed by all Modifications (not including errata content) or revisions do not apply to this standard, however, parties to agreements based on this standard are encouraged to study if it is possible to use the latest version of these files? For undated references, the latest edition applies to this standard.

GB/T 1838 tin plated steel plate (belt) tin plating test method GB/T 2520 cold rolled electroplated tin steel sheet (GB/T 2520-2000, eqv ISO 11949.:1995) GB/T 6682 Analytical laboratory water specifications and test methods

3 Method summary

The tin plating layer was dissolved by passing a constant current through the hydrochloric acid electrolyte with the sample as the anode. Due to the pure tin layer, alloy layer and steel base relative to the reference the potential of the test electrode is different, so the time required for the dissolution of the pure tin layer and the alloy layer can be obtained by monitoring the potential change of the sample, thereby obtaining the respective the amount of electricity consumed by total dissolution, according to Faraday's law of electrolysis, the amount of tin in the pure tin layer and the amount of tin in the alloy layer, the sum of the amount of pure tin and the amount of tin in the alloy that is the total amount of tin plating.

4 Reagents

4.1

Water. Meet the requirements of GB/T 6682 Class III water.

4.2

Hydrochloric acid. (1+10) to (1+5), prepared with analytically pure hydrochloric acid (ρ 1.19 g/mL).

4.3

Sodium carbonate solution. 5g/L ~ 10g/L, prepared with analytical reagents.

5 Instruments

Electrolytic metal plating thickness analyzer should meet the following requirements.

- Electrolytic desulphurization current should be able to control at a constant value;
- Ability to monitor potential changes and accurately record mutation times;
- The structure and instrument function of the electrolytic desulfurization tank can determine the tin plating amount on both sides of the sample.

6 Sample preparation

6.1

Sampling shall be carried out according to the provisions of GB/T 2520 or the agreement, and the sample shall be made into a sample suitable for the test area of the instrument, and the sample shall be flat.

6.2

The surface of the sample should be clean. Surface grease and dirt can be removed with a suitable solvent such as ether; surface oxide and peroxide film Corrosives can be wiped off

with a cleanser or a soft eraser. If necessary, use sodium carbonate solution (4.3) as the electrolyte and stainless steel electrode plate as the anode.

The sample is a cathode, which is treated with a 6V DC power source at a current density of about 80 mA/cm² for 10 s to 30 s, and the grease is removed to clean the surface of the sample.

7 Instrument calibration

The calibration of the instrument is carried out in accordance with the provisions of Appendix A.