ICS 77.040.99
CCS H 25

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 1838-2008

Replacing GB/T 1838-1995

Test methods for the tin coating mass of electrolytic tinplate

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Issued on: August 19, 2008 **Implemented on: April 1, 2009**

Issued by: General Administration of Quality Supervision, Inspection and Quarantine;
Standardization Administration of the PRC

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Foreword

The reference standard ISO 11949.1995 (E) "cold-rolled Tinplate" A "tin-plated steel plate (with) the amount of tin Determination of capacity" in Appendix Amendments. This standard replaces GB/T 1838-1995 "tin-plated steel plate (with) Tin Test Method." This standard and GB/T 1838-1995 compared to the main changes are as follows:

--- Measured by the scope of application of tin plating and hot tin-plated steel sheet for the determination of the amount of modification of tin plate tin plating amount;

--- Increased coulometry measurement range and repeatability. Effective measurement range by a 2.5g/m2 ~ 50g/m2 revised to 0.5g/m2 ~ 20g/m2; Determination section

--- such as electroplating thick coating amount of tin added "and the amount of tin coating thickness (< 2.5g/m2) measured" and delete "Hot Tin Determination of the amount of the tin layer ";

--- Increased duplex electrolysis in Coulomb law;

--- Increased calibration and inspection provisions in the Coulomb law;

--- Increase in Appendix A. Appendix A of this standard is an informative annex. The standard proposed by China Iron and Steel Association. This standard is under the jurisdiction of the National Steel Standardization Technical Committee. This standard was drafted. Wuhan Co., Ltd., Metallurgical Industry Information Standards Institute steel. The main drafters of this standard. Kay single army, Heming Wen, Feng Chao, Rencui Ying, Huang Bohua, ancient soldier level. This standard replaces the previous version of the release of case.

--- GB 1838-1980, GB/T 1838-1995. Electrolytic Tin Plate Tin Test Method

1 Scope

China's national method for determining how much tin is on a sheet of tinplate. It specifies the principle of the coulometric method for measuring the tin coating mass of electrolytic

tinplate, the specimens, the test solution and materials, the apparatus, the test conditions and procedure, the calculation of the results and the test report; an annex gives the X-ray fluorescence method. It applies to the determination of the tin coating mass of electrolytically tinned cold-rolled steel sheet, over an effective range of 0.5 to 20 g/m2 with a repeatability of 0.1 g/m2, and it serves as the reference method for calibrating other test methods for tin coating mass. Tinplate is steel with a coating of tin measured in grams per square metre, and that figure is simultaneously the whole cost of the coating and the whole of its function. Tin is expensive relative to steel and the layer is only a fraction of a micrometre thick, so a can maker specifying a heavier coating than the product needs is paying for metal that does nothing - while a coating too light for an aggressive filling perforates the can and spoils the contents. Coating mass is also specified differently on the two faces of the sheet for the same reason, since the inside sees the food and the outside sees the printing. The coulometric method measures the coating by stripping it electrochemically at a controlled current and timing how long the potential takes to change when the tin is gone. That makes it absolute, needing no calibration against a coated standard, which is why it is the reference method - and why the standard specifies the solution, the current density, the cell, the specimen area and the endpoint criterion so precisely. Issued on 19 August 2008 and in force since 1 April 2009, it replaces GB/T 1838-1995.

This standard specifies the principle of measuring the amount of tin-plated cold-rolled steel sheet tin plating with the capacity and the coulometric method, the sample, the test solution and material test Means test conditions and procedures, test results and test reports to calculate. Appendix A gives a fluorescent X-ray measurement of the amount of tin. This standard applies to the determination of the amount of tin tin plating cold-rolled steel sheet. Determination of the effective scope of this standard is 0.5g/m2 ~ 20g/m2; repeatability of 0.1g/m2. Standard test methods applicable to other test methods for calibrating the amount of tin.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 2520 tin plated cold-rolled steel sheet

GB/T 8170 numerical rounding rules

3 Capacity Act

3.1 Principle The tin layer surface of the sample is dissolved in hydrochloric acid with aluminum tin reduced to divalent tin, followed by carbon dioxide in the atmosphere with iodine protection Potassium standard solution was titrated. The volume and area of \u200b\u200bthe sample consumed standard solution, tin is calculated per unit area.

3.2 Sample Sampling methods and the number of samples according to GB/T 2520 or the technical conditions, technical agreement, the specimen diameter not less than 57mm Wafer.

3.3 Reagents and materials

3.3.1 Reagents and water. analytical grade reagents are used. Preparation of the solution and determination of the water used during the day must be boiled distilled Water, or deionized water.

3.3.2 hydrochloride. Take 750mL of hydrochloric acid (rho = 1.16g/mL), diluted with water to 1000mL.

3.3.3 ferric chloride solution. 100g of hydrated ferric chloride was dissolved in 100mL of hydrochloric acid (rho = 1.16g/mL), diluted with water to 1000mL.

3.3.4 potassium iodate standard solution [Ba (1/6KIO3) = 0.05mol/L]. Weigh 0.5g to 19g of sodium hydroxide and potassium iodide dissolved in water ; And potassium iodate at 180 °C drying to constant weight weighed 1.7835g dissolved in the solution until completely dissolved moved volumetric flask, dilute with water Diluted to 1000mL. The standard solution 1mL equivalent 0.002967g tin.

3.3.5 potassium iodate standard solution [Ba (1/6KIO3) = 0.025mol/L]. Weigh 0.5g to 1g of sodium hydroxide and potassium iodide dissolved in water ; And potassium iodate at 180 °C drying to constant weight weighed 0.9018g dissolved in the solution until completely dissolved moved volumetric flask, dilute with water Diluted to 1000mL. The standard solution 1mL equivalent 0.001484g tin.

3.3.6 Starch solution. 1g soluble starch was added 10mL water to prepare a suspension, add boiling water to 100mL, boiled 2min ~