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**Determination of acid resistance, sulfur resistance and salt
resistance of inner coating or laminated film in metal
containers used for food**

食品金属容器内壁涂覆层抗酸性、抗硫性、抗盐性的测定

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Determination of acid resistance, sulfur resistance and salt resistance of inner coating or laminated film in metal containers used for food

1 Scope

This document describes the methods for the determination of acid resistance, sulfur resistance and salt resistance of inner coating or laminated film in metal containers used for food.

This document applies to metal containers for food (cans, beverages, etc.) based on coated iron (or aluminum) or laminated iron (or aluminum).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 6682 *Water for analytical laboratory use - Specification and test methods*

3 Terms and definitions

This document does not have terms and definitions that need to be defined.

4 Principle

By simulating the corrosion of the actual contact contents on the inner coating or laminated film of metal containers for food, to evaluate the acid resistance, sulfur resistance and salt resistance.

5 Reagents and materials

Unless otherwise specified, use only analytical grade reagents.

5.1 Reagents

5.1.1 Water, GB/T 6682, Class III.

5.1.2 Glacial acetic acid.

5.1.3 Citric acid monohydrate ($\text{C}_6\text{H}_8\text{O}_7 \cdot \text{H}_2\text{O}$): purity > 99 %.

5.1.4 L-cysteine hydrochloride monohydrate ($\text{C}_3\text{H}_8\text{NO}_2\text{SCl} \cdot \text{H}_2\text{O}$): purity > 99 %.

5.1.5 Potassium dihydrogen phosphate (KH_2PO_4): purity > 99 %.

5.1.6 Disodium hydrogen phosphate dodecahydrate ($\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$): purity > 99 %.

5.1.7 Sodium sulfide nonahydrate ($\text{Na}_2\text{S} \cdot 9\text{H}_2\text{O}$): purity > 99 %.

5.1.8 Sodium chloride (NaCl): purity > 99 %.

5.2 Preparation of reagents

5.2.1 Acetic acid solution (3 % volume fraction)

MEASURE 30 mL of glacial acetic acid in a 1000 mL volumetric flask, DILUTE to the mark with water.

5.2.2 Citric acid solution (20 g/L)

WEIGH 21.86 g of citric acid monohydrate ($\text{C}_6\text{H}_8\text{O}_7 \cdot \text{H}_2\text{O}$), DISSOLVE it in water and DILUTE to 1000 mL.

5.2.3 Mixed solution of L-cysteine hydrochloride (0.56 g/L), potassium dihydrogen phosphate (3.6 g/L), disodium hydrogen phosphate (7.2 g/L)

WEIGH 0.56 g of L-cysteine hydrochloride monohydrate ($\text{C}_3\text{H}_8\text{NO}_2\text{SCl} \cdot \text{H}_2\text{O}$), 3.60 g of potassium dihydrogen phosphate (KH_2PO_4) and 18.2 g of disodium hydrogen phosphate dodecahydrate ($\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$), DISSOLVE them in water respectively, MIX them and DILUTE to 1000 mL with water. The mixed solution shall be used within 4 hours after preparation.

5.2.4 Sodium sulfide solution (0.5 g/L)

WEIGH 1.54 g of sodium sulfide nonahydrate ($\text{Na}_2\text{S} \cdot 9\text{H}_2\text{O}$), DISSOLVE it in water and DILUTE to 1000 mL, ADJUST the pH value to 5.5 ~ 6.0 with lactic acid.

5.2.5 Sodium chloride solution (30 g/L)

WEIGH 30 g of sodium chloride (NaCl), DISSOLVE it in water and DILUTE to 1000 mL.

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