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YS

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

YS/T 325.5-2009

Replacing YS/T 325-1994

**Methods for chemical analysis of nickel-copper alloy. Part 5:
Determination of aluminum content. The Na₂EDTA titrimetric
method**

镍铜合金化学分析方法 第5部分：铝量的测定 Na₂EDTA滴定法
(English Translation)

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Foreword

YS/T 325-2009 "nickel-copper alloy chemical analysis method" a total of six sections.

--- Part 1. Determination of nickel content Na₂EDTA titration

--- Part 2. Determination of copper content - Gravimetric method electrolysis

--- Part 3. Determination of iron content by flame atomic absorption spectrometry

--- Part 4. Determination of manganese content by flame atomic absorption spectrometry

--- Part 5. Determination of aluminum content Na₂EDTA titration

--- Part 6. Determination of the amount of titanium di Zhao DAM spectrophotometry this section YS/T Part 5 325.

The non-ferrous metal part by the National Standardization Technical Committee and centralized.

This section is responsible for drafting unit. aluminum Shenyang Nonferrous Metals Processing Co., Ltd.

Participated in the drafting of this section. Baoji Titanium Group Limited, CRIMM.

1 Scope

YS/T of the provisions of the section 325 determination of the amount of nickel and copper in aluminum alloys.

This section applies to the determination of the amount of nickel and copper in aluminum alloys. Measuring range. 1.00% - 7.00%.

2 Principle of the method

Sample dissolved in nitric acid, the solution was adjusted pH4.2 ~ pH4.4, the hydroxylamine hydrochloride, bitter almond presence of an acid, ammonium benzoate and aluminum generate Shen precipitate. The precipitate was dissolved with hydrochloric acid, an excess of Na₂EDTA, so that the aluminum complex. Zinc standard solution titration of excess Na₂EDTA. Sodium fluoride, zinc standard titration solution and then titrated been released Na₂EDTA.

3 Reagents

Unless otherwise indicated in the analysis using only recognized as analytical grade reagents and distilled or deionized water or equivalent purity.

3.1

sodium fluoride.

3.2

nitric acid (1 + 1).

3.3

HCl (1 + 1).

3.4

hydrochloric acid (1 + 2).

3.5

hydrochloride [Ba (HCl) = 1mol/L].

3.6

Ammonia (rho0.90g/mL).

3.7

buffer solution. 125g of anhydrous sodium acetate is dissolved in water, was added 130mL of hydrochloric acid (3.3), diluted with water to 1000mL, mixed uniform. This solution is approximately pH4.5.

3.8

hydroxylamine hydrochloride solution (100g/L).

3.9

mandelic acid solution (100g/L).

3.10

ammonium benzoate solution (80g/L).

3.11

Ammonium benzoate lotion. A 400mL water, 50mL ammonium benzoate solution (3.10) and 50mL hydroxylamine hydrochloride (3.8) and mix.

3.12

hexamethylenetetramine solution (300g/L).

3.13

acetic acid (1 + 1). with 36% acetic acid preparation.

3.14

pairs nitrophenol solution (2g/L).

3.15

XO solution (2g/L).

3.16

disodium ethylenediaminetetraacetate (by Na₂EDTA) standard solution [Ba (C₁₀H₁₄N₂O₈Na₂ · 2H₂O) = 0.025mol/L]. will 9.3gNa₂EDTA dissolved in 200mL hot water, cooling transferred to 1000mL volumetric flask, dilute with water to volume, and mix.

3.17

aluminum standard solution. Weigh 1.0000g of aluminum (aluminum mass fraction $\geq 99.95\%$) placed in 150mL Teflon beaker, 20mL was added sodium hydroxide solution (300g/L), heated slowly to dissolve completely cooled. With hydrochloric acid (3.3) adjusted to precipitate disappeared, clear solution Che, then the solution is acidic, cooled and transferred to 1000mL volumetric flask, dilute with water to volume, and mix. 1mL solution containing 1mg Aluminum (rho).