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

YS/T 520.2-2007

Replacing YS/T 520.2-2006

**Chemical analysis of gallium. Part 2: Determination of lead
content. The 4-(2-pyridylazo)-resorcinol spectrophotometric
method**

镓化学分析方法 第2部分：铅含量的测定4-(2-吡啶偶氮)-间苯二酚分光光度法
(English Translation)

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Foreword

YS/T 520-2007 "Chemical analysis of gallium" Is the YS/T 520-2006 (formerly GB/T 4375-1984) amendments, divided into Part 12.

--- Part 1. Determination of copper content of 2,9-dimethyl-4,7-diphenyl-1,10-phenanthroline spectrophotometry

--- Part 2. Determination of lead content of 4- (2-pyridyl) - resorcinol spectrophotometry

--- Part 3. Determination of aluminum content Chromazurol S- tetradecyl pyridine bromide spectrophotometric method

--- Part 4. Determination of iron content of 4,7-diphenyl-1,10-phenanthroline spectrophotometry

--- Part 5. Determination of calcium content nitrous oxide - acetylene flame atomic absorption spectrometry

--- Part 6. Determination of tin content salicylfluorone - cetyl trimethyl ammonium bromide, spectrophotometry

--- Part 7. Determination of silicon content extraction - molybdenum blue spectrophotometric method

--- Part 8. Determination of indium content of ethyl violet spectrophotometry

--- Part 9. Determination of germanium content Phenylfluorone - polyethylene glycol octyl phenyl ether extraction spectrophotometric method

--- Part 10. Determination of zinc content atomic absorption spectrometry

--- Part 11. Determination of mercury content of the cold atomic absorption spectrometry

--- Part 12. lead, copper, nickel, aluminum, indium and zinc Determination of chemical spectroscopy this is Part 2.

The partial replacement of YS/T 520.2-2006 (formerly GB/T 4375.2-1984).

This part is YS/T 520.2-2006 "Determination of Chemical analysis of gallium Part 2 lead content 4- (2-pyridyl azo) - Inter Hydroquinone spectrophotometry "editorial finishing.

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

This standard by the Aluminum Corporation of China Shandong branch responsible for drafting.

Drafters of this section. Yun-Xia Wang, Shi Ching-chang, all red Tao, Xu good text.

The non-ferrous metal part by the National Standardization Technical Committee responsible for the interpretation.

This part of the standard replaces the previous editions are.

--- YS/T 520.2-2006 (formerly GB/T 4375.2-1984).

Chemical analysis of gallium Determination of lead content. Part 2 4- (2-pyridyl) - resorcinol spectrophotometry

1 Scope

This section provides gallium determination of lead content.

This section applies to the determination of gallium in lead content. Measurement range. 0.0010% to 0.030%.

2 Method summary

With sample dissolved in hydrochloric acid and nitric acid, sodium citrate and acetone cyanohydrin masking interfering elements, ammonium chloride - ammonia buffer solution (pH = 10) Benzene solution was extracted with dithizone lead, with dilute hydrochloric acid lead back-extracted into the water phase. Lead with 4- (2-pyridyl) - resorcinol (PAR) shape Red complex in a spectrophotometer measuring the absorbance at 520nm wavelength.

3.2 Hydrochloric acid, pure class distinctions (rho1.19g/cm

Hydrochloride 3.3 (1 + 119).

3.4 sodium citrate solution (200g/L). Weigh 100g sodium citrate, placed in a beaker of 500mL, 400mL of water was added to dissolve it, with 20% sodium hydroxide solution was adjusted to pH = 7 ~ 8, and the solution was transferred to a separatory funnel 1000mL was

added three 10mL 0.02% dithizone Chloride solution, shaking 1min, standing layered release organic phase, extraction was repeated several times until the organic phase was green. Aqueous phase 10mL chloroform, oscillation 30s, standing layer, the organic phase was discarded, the aqueous phase was extracted repeatedly several times to colorless. The aqueous phase was diluted to 500mL.

3.5 sodium citrate solution (20g/L). sodium citrate (3.4) diluted 10-fold with water.

3.6 ammonium chloride - ammonia buffer solution (pH = 10.5 ~ 11). Weigh 67g of ammonium chloride, placed in 500mL beaker, 300mL of water to dissolve. The following press sodium citrate solution (3.4) purification method for purification. Purified ammonium chloride solution was added 500mL excellent Level of pure ammonia (rho 0.90), diluted with water to 1000mL.

Acetone cyanohydrin 3.7 $[(CH_3)_2C(OH)CN]$.

3.8 washing liquid. 5mL sodium citrate solution (3.4), 5mL ammonium chloride - ammonia buffer solution (3.6), 1mL acetone cyanohydrin (3.7) and 89mL of water and mix.

3.9 PAR solution (0.2g/L). Weigh 0.1g 4-(2-pyridyl) - resorcinol dissolved in 200mL of ethanol, diluted with water to 500mL, stored in a brown bottle.

Benzene 3.10 dithizone solution (0.2g/L).

3.11 lead standard stock solution. Weigh 0.1000g metallic lead $[(Pb) \geq 99.99\%]$ placed in 300mL beaker, add 30mL nitrate Acid (1 + 2), to be dissolved lead, get rid of nitrogen oxides heating, cooling, transferred to 1000mL volumetric flask with water to volume, and mix. This solution 1mL containing 100μg lead.

3.12 Lead standard solution. Pipette 20.00mL lead standard stock solution (3.11), placed in 200mL volumetric flask, with nitric acid (1 + 49) dilute Diluted to volume, and mix. This solution 1mL containing 10μg lead.

4 Instrument

Spectrophotometer.