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YS

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

YS/T 520.9-2007

Replacing YS/T 520.9-2006

**Chemical analysis of gallium. Part 9: Determination of
germanium content. The phenylfluorone-polyethylene glycol
octyl phenyl ether extraction spectrophotometric method**

镓化学分析方法 第9部分：锗含量的测定苯基荧光酮-聚乙二醇辛基苯基醚萃取分
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 Part is divided into 9 parts.

The partial replacement of YS/T 520.9-2006 (formerly GB/T 4375.9-1984).

This part is YS/T 520.9-2006 "Chemical analysis of gallium Part 9. Determination of germanium content Phenylfluorone - polyethylene Alcohol octylphenyl ether extraction 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.

This section drafters. Zhang Xinyu, Hu Zhenping, Zhao Shali, Sun Guo.

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 520.9-2006 (formerly GB/T 4375.9-1984).

Chemical analysis of gallium Part 9. Determination of germanium content Phenylfluorone - polyethylene glycol octyl phenyl ether Extraction spectrophotometry

1 Scope

This section specifies the determination method gallium germanium content.

This section applies to the determination of gallium in the germanium content.

Measurement range. 0.00005% to 0.015%

2 Method summary

Samples with nitric acid, sulfuric acid dissolution. In 9mol/L hydrochloric acid medium to extract germanium tetrachloride, back extracted with water at about 0.7mol/L Hydrochloric acid solution and germanium Phenylfluorone, polyethylene glycol octylphenyl ether formed orange complexes, 510nm wavelength measured in a spectrophotometer Absorbance.

3 Reagents

3.1

CTC. at 76 °C ~ 77.5 °C purified by distillation.

3.3 Hydrochloric acid, pure class distinctions ($\rho=1.19\text{g/cm}^3$)

3.4 sulfate (1 + 1).

3.5 HCl (1 + 1).

3.6 Phenylfluorone solution (0.6g/L). Weigh 0.15g Phenylfluorone, 5mL dissolved in hydrochloric acid (3.5) and 100mL ethanol the transferred 250mL flask, diluted with ethanol to the mark, and mix. After filtration stored in a brown bottle. Valid for one month.

3.7 polyethylene glycol octylphenyl ether (emulsifier -OP) solution (1 + 24).

3.8 Germanium standard stock solution. weigh 0.1441g spectra of pure germanium dioxide take $[(\text{GeO}_2) \geq 99.99\%]$, a 50mL beaker, add the number of tablets of sodium hydroxide and the amount of water was warmed on a hot plate until all of germanium dioxide dissolved transferred to 500mL volumetric flask, diluted with water to the mark, and mix. This solution 1mL containing 200 μg germanium.

3.9 Germanium standard solution. Pipette 10.00mL germanium standard stock solution (3.8), placed in 200mL volumetric flask, dilute to the mark, mix uniform. This solution 1mL containing 10 μg germanium.

4 Instrument

Spectrophotometer.

5 Sample

The samples in sealed Teflon bottle, placed in 50 °C water bath until the sample is completely converted to body solution, shake, and cooled to Room temperature before use.

6 Step, Analysis

6.1

Determination of the number of Weigh two samples were measured. Averaged.