

KES

Method of Phosphorous
Analysis in Copper Alloys
and Copper Products.

KES T – M055

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1. Scope of application.

This standard shall prescribe for method of phosphorous analysis in copper alloys and copper product.

2. General fact.

General fact of method analysis shall follow KES T-M039

(Method of analysis in copper alloys and copper product)

3. Analysis method.

Phosphorous analysis in copper alloys and copper product is to be analyzed by following 2 ways.

(1) Capacity method: Applied to sample containing phosphorous 0.03 ~ 0.5wt%

(2) Photometry: Applied to sample containing phosphorous 0.004 ~ 0.5wt%

4. Capacity method

4.1 After dissolving sample in acid, deposit and separate phosphorous with ammonium maldive phosphorus acid and dissolve in standard alkaline solution then adjust the rest alkaline with standard acid solution to ix quantity of phosphorous.

4.2 Reagent

(1) Nitrate

(2) Nitrate (1 : 50)

(3) Ammonium nitirite(10%)

(4) Potassium nitrate solution (1%)

(5) Ammonium nitrate

(6) Potassium peroxide solution (Saturate)

- (7) Ammonium maldivic acid : Dissolve ammonium maldivic acid 65g and ammonium nitrate 225g to beaker(600ml) with ammonia 15ml and distilled water 100ml then filter till it is watery to 1 l.
- (8) Ferrous chloride solution dissolve 25g to 400ml of distilled water
- (9) Sodium hydroxide standard solution (0.1N) : Follow KS M0002
(Prescribing method of standard solution for chemical analysis)
- (10) Nitrate Standard solution (0.1N)
- (11) Phenolphthalein indicator (0.1% ethanol solution) : Follow KS M0015
(Prescribing method of indicator for chemical analysis)

4.3 Operation

- (1) Weigh sample(1 ~ 5g) containing 5mg of phosphorous and shift to triangle flask(500ml) then dissolve in 2mg nitrate and add 5ml nitrate per 1g of sample⁽²⁾.
- (2) With heating slowly, when generating of nitrate oxide is stopped, add 100ml of distilled water and heat till it is oiled then add one drop of potassium permanganate solution till solution becomes dark purple.

After boiling for 5 minutes, add one drop of ammonium nitrate and reserve potassium permanganate and deposited manganese carbonate to get pure blue solution then boil for 5 minutes again
- (3) When solution is cooled under 25°C, add 5g of ammonium nitrate and with adding ammonium maldivic acid solution 60ml slowly and stirring, cover with rubber cap then shake for 5 minutes and leave it in normal temperature for 1 hour.
- (4) With filter in minute filtered paper and add 5g of ammonium nitrate, wash with potassium nitrate solution continually 10 more times till acid is removed completely.
- (5) Shift to flask used in depositing sediment with filter and add distilled water 30ml not contained carbon dioxide then shake with covering to pscatter with filtered paper.