

KES

Analysis of Silicon in Ferrosilicon

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1. Scope of application

This standard shall specify the quantitative analysis method of silicon in ferrosilicon.

2. General particular

The general particular of analysis method is followed by KS D 1816.

(The general rule of analysis method of ferroalloy)

3. Analysis equipment and apparatus

- (1) Electric furnace : The thing that boost up to 900°C
- (2) Platinum Crucible (50 ml) : Nickel crucible (130 ml)
- (3) Reagent
 - (a) Melting synthetic material ($\text{Na}_2\text{O}_2 + \text{Na}_2\text{CO}_3$ (Anhydrous) 2 : 1)
 - (b) Hydrochloric acid (1 : 1, 1 : 10)
 - (c) Perchloric acid (HClO_4) 60%
 - (d) Sulfuric acid (1 : 2, 1 : 3)
 - (e) HF 46%

4. Analysis method

The analysis of silicon in ferrosilicon is based on the gravimetric method.

- (1) Put 0.2g of specimen and 5g of melting synthetic material in the nickel crucible, and mix it well.
Overspread 1g of melting synthetic material in here, put a lid on the crucible. Heat it slowly on the electric furnace up to 700°C.
- (2) After cooling down, put 60 ml of Hydrochloric acid(1 : 1) in the crucible, and elute the solution into a 500 ml beaker. Wash the crucible in water, pour 40 ml of perchloric acid. Heat and evaporate continually for 15 minutes; then vaporized perchloric acid is flowed backward according to the inside wall of the beaker.
- (3) After cooling down, pour 20 ml of hydrochloric acid(1 : 1) and 100 ml of warm water, Melt soluble salts. Filtrate the solution instantly by filter paper (5A).
Wipe off tag on the inside wall with the rubber glass rod, and put in the filter paper. At first, rinse it out with warm hydrochloric acid (1 : 1) five times. After that, wash it in warm water until an iron ion is not detected from washed solution.
- (4) Put filtrate in the 500 ml beaker, add 10 ml of perchloric acid. Repeat (2) and (3), and filtrate the solution by filter paper (5B).