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GB/T 38812.2-2020

**Direct reduced iron - Determination of metallic iron
content - The potassium dichromate titrimetric
method after decomposition of sample by ferric
chloride**

直接还原铁 金属铁含量的测定 三氯化铁分解重铬酸钾滴定法

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Table of Contents

Foreword.....	3
1 Scope.....	4
2 Normative references.....	4
3 Principle	5
4 Reagents and materials	5
5 Instruments	6
6 Sampling and sample preparation	6
7 Analysis steps	6
8 Result calculation and expression.....	7
9 Test report	8
Appendix A (Normative) Sample analysis result acceptance procedure flow chart.....	9

Direct reduced iron - Determination of metallic iron content - The potassium dichromate titrimetric method after decomposition of sample by ferric chloride

Caution -- The personnel who uses this Part shall have hands-on experience in formal laboratory work. This Part does not address all possible security issues. It is the responsibility of the user to take appropriate safety and health measures and to ensure compliance with the conditions which are set by the relevant national regulations.

1 Scope

This Part of GB/T 38812 specifies the potassium dichromate titrimetric method after decomposition of sample by ferric chloride to determine the metallic iron content.

This Part applies to the determination of metallic iron content in direct reduced iron; the determination range (mass fraction): $\geq 50.00\%$.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 6682, Water for analytical laboratory use - Specification and test methods

GB/T 8170, Rules of rounding off for numerical values & expression and judgment of limiting values

GB/T 12805, Laboratory glassware - Burettes

GB/T 12806, Laboratory glassware - One-mark volumetric flasks

GB/T 12808, Laboratory glassware - One mark pipettes

5 Instruments

5.1 Common laboratory equipment that is used in the analysis. Burettes, one-mark volumetric flasks and one mark pipettes shall meet the requirements of GB/T 12805, GB/T 12806 and GB/T 12808.

5.2 Oscillator: reciprocating multi-functional oscillator. Oscillation frequency: 150 times/min ~ 160 times/min; amplitude: 20 mm (reciprocating).

6 Sampling and sample preparation

Perform sampling and sample preparation according to the provisions of GB/T 24239.

7 Analysis steps

7.1 Number of determinations

Make at least two independent determinations on the same sample.

Note: "Independent" means that the second and any subsequent determination result is not affected by the previous determination result. In this analysis method, this condition means that in the same laboratory, the same operator uses the same equipment and the same test method to independently repeat the determination on the same tested object in a short time, including the use of appropriate recalibration.

7.2 Sample mass

Weigh 0.10 g of sample, to the nearest 0.000 1 g.

7.3 Blank test

Carry out a blank test along with the sample.

7.4 Determination

7.4.1 Sample decomposition

Place the sample (see 7.2) in a dry 300 mL conical flask; add 40 mL of ferric trichloride solution (see 4.4); stopper the bottle; place it on an oscillator and shake for 40 min. Use a medium-speed filter paper to filter; collect the filtrate in a 500 mL conical flask. Use water to wash the conical flask, stopper and residue 6 ~ 8 times; control the solution volume to 150 mL ~ 200 mL.

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