



Standard Test Methods for Determination of Manganese in Iron Ores by Pyrophosphate Potentiometry and Periodate Spectrophotometry Techniques¹

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1. Scope

1.1 These test methods cover the determination of manganese in iron ores, concentrates, and agglomerates. The following two test methods are included:

Test Method A (Pyrophosphate (Potentiometric))	Sections
Test Method B (Periodate (Spectrophotometric))	8 – 15
	16 – 22

1.2 Test Method A covers the determination of manganese in the range from 2.5 % to 15.0 %. Test Method B covers the determination of manganese in the range of 0.01 % to 5.00 %.

NOTE 1—The lower limit for this test method is set at 50 % relative error for the lowest grade material tested in the interlaboratory study in accordance with Practice E1601.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E50 Practices for Apparatus, Reagents, and Safety Considerations for Chemical Analysis of Metals, Ores, and Related Materials

E135 Terminology Relating to Analytical Chemistry for

¹ These test methods are under the jurisdiction of ASTM Committee E01 on Analytical Chemistry for Metals, Ores, and Related Materials and are the direct responsibility of Subcommittee E01.02 on Ores, Concentrates, and Related Metallurgical Materials.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

Metals, Ores, and Related Materials

E173 Practice for Conducting Interlaboratory Studies of Methods for Chemical Analysis of Metals (Withdrawn 1997)³

E877 Practice for Sampling and Sample Preparation of Iron Ores and Related Materials for Determination of Chemical Composition and Physical Properties

E882 Guide for Accountability and Quality Control in the Chemical Analysis Laboratory

E1601 Practice for Conducting an Interlaboratory Study to Evaluate the Performance of an Analytical Method

3. Terminology

3.1 *Definitions*—For definitions of terms used in these test methods, refer to Terminology E135.

4. Significance and Use

4.1 This test method is intended to be used for compliance with compositional specifications for manganese content in iron ores, concentrates, and agglomerates. It is assumed that all who use these procedures will be trained analysts capable of performing common laboratory procedures skillfully and safely. It is expected that work will be performed in a properly equipped laboratory and that proper waste disposal procedures will be followed. Appropriate quality control practices must be followed such as those described in Guide E882.

5. Reagents and Materials

5.1 *Purity of Reagents*—The purity of the common chemical reagents used shall conform to Practices E50. Special apparatus and reagents required are located in separate sections preceding the procedure.

6. Hazards

6.1 For precautions to be observed in this method, refer to Practices E50.

³ The last approved version of this historical standard is referenced on www.astm.org.