



Designation: E 372 – 84 (Reapproved 1996)

## Standard Test Method for Chemical Analysis of Magnesium Ferrosilicon<sup>1</sup>

This standard is issued under the fixed designation E 372; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This test method covers the chemical analysis of magnesium ferrosilicon having chemical compositions within the following limits:

Element	Concentration Range, %
Aluminum	2.0 max
Calcium	0.25 to 3.00
Carbon	0.50 max
Cerium	1.0 max
Chromium	0.50 max
Magnesium	2.00 to 12.00
Manganese	1.0 max
Silicon	40.00 to 55.00
Sulfur	0.025 max
Titanium	0.2 max

1.2 *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.* For general precautions to be observed in this test method, refer to Practices E 50.

### 2. Referenced Documents

#### 2.1 ASTM Standards:

- E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications<sup>2</sup>
- E 32 Practices for Sampling Ferrous Alloys and Steel Additives for Determination of Chemical Composition<sup>3</sup>
- E 50 Practices for Apparatus, Reagents, and Safety Precautions for Chemical Analysis of Metals<sup>3</sup>
- E 60 Practice for Photometric and Spectrophotometric Methods for Chemical Analysis of Metals<sup>3</sup>
- E 173 Practice for Conducting Interlaboratory Studies of Methods for Chemical Analysis of Metals<sup>3</sup>

### 3. Significance and Use

3.1 This test method for the chemical analysis of metals and alloys is primarily intended to test such materials for compli-

ance with compositional specifications. It is assumed that all who use this test method 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.

### 4. Apparatus, Reagents, and Photometric Practice

4.1 Apparatus and reagents required for each determination are listed in separate sections preceding the procedure. The apparatus, standard solutions, and certain other reagents used in more than one procedure are referred to by number and shall conform to the requirements prescribed in Practices E 50, except that photometers shall conform to the requirements prescribed in Practice E 60.

4.2 Photometric practice prescribed in this test method shall conform to Practice E 60.

### 5. Sampling

5.1 For procedures for sampling the material, refer to Methods E 32.

### 6. Rounding Calculated Values

6.1 Calculated values shall be rounded to the desired number of places as directed in 3.4 to 3.6 of Practice E 29.

### 7. Interlaboratory Studies

7.1 This test method has been evaluated in accordance with Practice E 173, unless otherwise noted in the precision and bias section.

### CALCIUM AND MAGNESIUM BY THE (ETHYLENEDINITRILO)TETRAACETIC ACID (EDTA) TITRIMETRIC METHOD

### 8. Scope

8.1 This test method covers the determination of magnesium in concentrations from 2 to 12 % and calcium in concentrations from 0.25 to 3.0 %.

### 9. Summary of Test Method

9.1 After dissolution of the sample in nitric and hydrofluoric acids, an ammonium hydroxide precipitation is made to separate other elements from calcium and magnesium. Calcium and magnesium plus calcium are titrated in separate aliquot portions after adding triethanolamine and potassium cyanide to mask residual traces of iron, copper, nickel, manganese, and

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee E-1 on Analytical Chemistry for Metals, Ores, and Related Materials and are the direct responsibility of Subcommittee E01.01 on Iron, Steel, and Ferrous Alloys.

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<sup>2</sup> Annual Book of ASTM Standards, Vol 14.02.

<sup>3</sup> Annual Book of ASTM Standards, Vol 03.05.