Designation: E 1506 – 97 (Reapproved 2003)

Standard Test Methods for Analysis of Acid-Grade Calcium Fluoride (Fluorspar)[1]

This standard is issued under the fixed designation E 1506; 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 (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 These test methods cover the chemical analyses of acid-grade calcium fluoride (fluorspar). These test methods appear in the following sections:

	Sections
Volatiles as Moisture	6-13
Silica	14-22
Assay as Calcium Fluoride (CaF_2)	23-32
Soluble Chloride as NaC1	33-50
Calcium Carbonate	51-59
Phosphorus	60-69
Arsenic	70-78
Mixed Oxides (R_2O_3)	79-87
Sulfide Sulfur	88-96

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 *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.*

1.4 Review the current Material Safety Data Sheet (MSDS) for each chemical used in this standard for detailed information concerning toxicity, first-aid procedures, handling, and safety precautions.

2. Referenced Documents

2.1 *ASTM Standards:*

D 1193 Specification for Reagent Water[2]

E 180 Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial Chemicals[3]

E 300 Practice for Sampling Industrial Chemicals[4]

3. Significance and Use

3.1 Calcium fluoride is available in nature in various forms and purities. A major use for it is in the manufacture of hydrofluoric acid. The test methods listed in 1.1 provide procedures for analyzing calcium fluoride to determine whether it is suitable for this use.

4. Reagents

4.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available.[5] Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

4.2 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean Type II or Type III reagent water conforming to Specification D 1193.

5. Sampling

5.1 Sampling of calcium fluoride is not within the scope of these test methods. See the appropriate sections of Practice E 300 for sampling procedures.

VOLATILES AS MOISTURE

6. Scope

6.1 This test method covers the determination of volatiles as percent moisture.

7. Summary of Test Method

7.1 The sample is dried in an air oven at 105 to 110°C, and the weight loss is calculated as percent moisture.

8. Apparatus

8.1 *Top-Loading Balance*, capable of weighing 1000 g to the nearest 0.01 g.

8.2 *Sample Pan*, stainless steel or borosilicate glass, 152 by 152 by 51 mm (6 by 6 by 2 in.) deep.

8.3 *Cooling Rack*, wood or metal, able to allow circulation of air around the entire sample pan (for example, a "baker's rack").

[1] These test methods are under the jurisdiction of ASTM Committee E15 on Industrial and Specialty Chemicalsand are the direct responsibility of Subcommittee E15.02 on Product Standards.

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[2] *Annual Book of ASTM Standards*, Vol 11.01.

[3] *Annual Book of ASTM Standards*, Vol 15.05.

[4] Discontinued. See 2000 *Annual Book of ASTM Standards*, Vol 15.05.

[5] *Reagent Chemicals, American Chemical Society Specifications*, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.

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