INTERNATIONAL

Designation: D6827 – 02 (Reapproved 2023)

Standard Test Method for Zinc Analysis of Floor Polishes and Floor Polish Polymers By Flame Atomic Absorption (A.A.)[1]

This standard is issued under the fixed designation D6827; 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 This laboratory test method covers the analysis of floor polishes and floor polish polymers for total zinc content.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.3 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Significance and Use

2.1 This test method is generally accepted for the preparation of floor polish and floor polish polymers for the analysis of total zinc content. Knowing the total zinc content of a floor finish or polymer can aid in determining the proper disposal method of used or unwanted product.

3. Apparatus

3.1 *Analytical Balance,* accurate to 0.001 g.

3.2 *Hot Plate.*

3.3 *Ventilation Hood.*

4. Reagents and Materials

4.1 *100 mL Beaker.*

4.2 *1:1 Nitric Acid Solution.*

4.3 *Disposable Pipets.*

4.4 *100 mL Volumetric Flask.*

4.5 *Deionized Water.*

4.6 *Filter Funnel.*

4.7 *Filter Paper.*

5. Procedure

5.1 *Sample Preparation:*

5.1.1 Before a sample can be run for total zinc, it must be prepared so that any insoluble zinc will be solubilized and not removed by the filtering process. By preparing the sample in the following way, the analysis will be much more accurate (testing total zinc instead of soluble zinc). The prep method will also lessen the chance of clogging the nebulizer of the atomic absorption unit with particulate matter.

5.2 *Prep Method:*

5.2.1 *Important*—All glassware used must be washed with 1:1 nitric acid solution and rinsed with deionized water to eliminate contamination.

5.2.2 Weigh approximately 50 g of sample into a 100 mL beaker. Record the exact weight to 0.001 g on the analysis sheet.

5.2.3 Add approximately 5 mL of a 1:1 nitric acid solution to the beaker. The amount need not be exact. Two disposable pipets worth should be adequate.

5.2.4 Heat the sample to boiling in a hood. Allow the sample to boil until approximately 40 mL of sample remain.

5.2.5 Cool the sample and filter into a 100 mL volumetric flask. Rinse the beaker and filter into the volumetric flask with deionized water.

5.2.6 Bring the sample to volume with deionized water.

5.2.7 Analyze sample by flame A.A.

5.3 *Sample Analysis:*

5.3.1 The samples should be analyzed using a flame atomic absorption spectrometer. In absence of this piece of equipment, the prepped samples may be sent to an independent laboratory for analysis as long as the following information is recorded:

5.3.1.1 Calibration curve (record concentration and absorbance of standards),

5.3.1.2 Analysis of standard at beginning and end of sample run,

5.3.1.3 Blank analysis,

5.3.1.4 Sample identification, and

5.3.1.5 Date of analysis.

[1] This test method is under the jurisdiction of ASTM Committee D21 on Polishes and is the direct responsibility of Subcommittee D21.03 on Chemical and Physical Testing.

Current edition approved Sept. 1, 2023. Published September 2023. Originally approved in 2002. Last previous edition approved in 2016 as D6827 – 02 (2016). DOI: 10.1520/D6827-02R23.

6. Precision and Bias

6.1 To be determined through round robin inter-laboratory participation.

7. Keywords

7.1 atomic absorption; floor finish; zinc