



# Standard Guide for Sampling Plan and Core Sampling of Carbon Cathode Blocks Used in Aluminum Production<sup>1</sup>

This standard is issued under the fixed designation D 6354; 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 sampling guide was developed for carbon cathode blocks used in the production of aluminum, and details procedures for taking test samples from single cathode blocks. It covers equipment and procedures for obtaining samples from cathode blocks in a manner that does not destroy the block or prevent its subsequent use as originally intended. However, the user must determine the subsequent use of the sampled cathode blocks. Preferred locations for taking samples from single units of cathodes are covered in this guide.

1.1.1 Information for sampling of shaped refractory products, in general, is given in ISO 5022. This standard details the statistical basis for sampling plans for acceptance testing of a consignment or lot. Cathode blocks used in the production of aluminum have specific requirements of sampling, and while the statistical basis for sampling given in ISO 5022 applies, further or modified requirements may, also, apply.

1.2 SI units are the standard in this guide.

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.*

NOTE 1—The following ASTM standards are noted as sources of useful information: Test Methods C 559, C 611, C 651, C 747, C 1025, C 1039, and E 1225.

## 2. Referenced Documents

### 2.1 ASTM Standards:

- C 559 Test Methods for Bulk Density by Physical Measurements of Manufactured Carbon and Graphite Articles<sup>2</sup>
- C 611 Test Method for Electrical Resistivity of Manufactured Carbon and Graphite Articles at Room Temperature<sup>2</sup>
- C 651 Test Method for Flexural Strength of Manufactured Carbon and Graphite Articles Using Four-Point Loading at Room Temperature<sup>2</sup>
- C 747 Test Method for Moduli of Elasticity and Fundamen-

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 15.01.

tal Frequencies of Carbon and Graphite Materials by Sonic Resonance<sup>2</sup>

C 1025 Test Method for Modulus of Rupture in Bending of Electrode Graphite<sup>2</sup>

C 1039 Test Methods for Apparent Porosity, Apparent Specific Gravity, and Bulk Density of Graphite Electrodes<sup>2</sup>

C 1225 Test Method for Thermal Conductivity of Solids by Means of the Guarded-Comparative-Longitudinal Heat Flow Technique<sup>3</sup>

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 14.02.

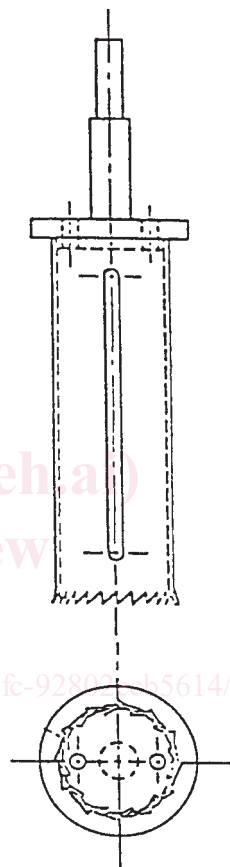


FIG. 1 Typical Core Drill Bit