Designation: F 1015 – 86 (Reapproved 1995)

Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces[1]

This standard is issued under the fixed designation F 1015; 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 test method covers the measurement of the relative abrasiveness of synthetic turf playing surfaces. This test method is applicable to both laboratory and field measurement. Typical playing surfaces include fabric or carpet-type surfaces used for football, baseball, and soccer.

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.*

2. Referenced Documents

2.1 *ASTM Standards:*

C 421 Test Method for Tumbling Friability of Preformed Block-Type Thermal Insulation[2]

E 105 Practice for Probability Sampling of Materials[3]

E 122 Practice for Choice of Sample Size to Estimate the Average Quality of a Lot or Process[3]

F 355 Test Method for Shock-Absorbing Properties of Playing Surface Systems and Materials[4]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *synthetic turf playing surface*—a fabric-type surface consisting of pile blades or fibers bonded through a process such as weaving, knitting, or tufting to some substrate usually over a shock-absorbing pad. The synthetic turf playing surface provides the desired appearance and shoe-surface interface performance properties.

3.1.2 *abrasiveness*—that property of a synthetic turf which causes material in moving contact with the turf surface to wear away.

3.1.3 *abrasiveness index*—a number equal to the weight lost in grams per foot of travel of a standard weighted friable foam set multiplied by 100, when the foam is pulled through a complete 1.8-m (6-ft) test cycle.

3.1.4 *foam friability index*—a number equal to the percent mass loss of foam when tested in accordance with the Procedure section of Test Method C 421.

4. Summary of Test Method

4.1 Friable foam blocks are attached to a weighted platform which is pulled over the playing surface in a prescribed manner. The weight of foam abraded away determines the relative abrasiveness of the surface.

5. Significance and Use

5.1 Data obtained from the procedure of this test method are indicative of the relative abrasiveness of fabric or carpet type synthetic playing surfaces.

6. Apparatus

6.1 *Abrasiveness Test Platform*—A test platform is used to support the load on the friable foam material. The platform shall consist of a 20.3 by 20.3 cm (8.00 by 8.00 in.) square of 0.635-cm thick (0.25 in.) aluminum. Holes 0.635 cm in diameter shall be centered 0.635 cm from the midpoint of each edge to permit attachment of a suitable hook for pulling. Foam retaining strips, ¼ in. high by ½ in. wide, defining 2 by 2-in. squares, are attached at each corner (Fig. 1). The completed platform should weigh 931 ± 28 g.

6.2 *Test Weight*—A flat-head (9.072-kg (20.00-lb)) missile as used in Test Method F 355, Procedure A, can be used as a test weight. A suitable alternative weight is a steel cylinder about 15.2 cm (6.00 in.) in diameter and about 6.35 cm (2.50 in.) in height. The test weight is to be within 56 g (2 oz) of its specified weight.

6.3 *Pull Cable and Direction Changing Pulley*—A direction changing pulley attached to an operator foot restraint may be used to facilitate moving the loaded platform across the surface while keeping the pull cable parallel to the surface. The pull cable must not stretch under tension and must be equipped with a method of determining the distance pulled. For example, mechanical stops on either side of the direction changing pulley can be set to give the 45.7-cm (18-in.) pull length.

7. Test Foam[5]

7.1 The friable foam blocks used as the test material shall be

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[2] *Annual Book of ASTM Standards*, Vol 04.06.

[3] *Annual Book of ASTM Standards*, Vol 14.02.

[4] *Annual Book of ASTM Standards*, Vol 15.07.

[5] Available from UpJohn Corp., CPR Div., 555 Alaska Ave., Torrance, CA.