



Designation: F 1292 – 9904

An American National Standard

Standard Specification for Impact Attenuation of Surface Systems Under and Around Surfacing Materials Within the Use Zone of Playground Equipment¹

This standard is issued under the fixed designation F 1292; 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.

INTRODUCTION

Surveys by the United States Consumer Product Safety Commission (CPSC)² and others have shown that falls from playground equipment onto the underlying surface are a systematic means significant cause of injuries to children. Severe head injuries are the most frequently implicated cause of death in playground equipment-related falls. Use of appropriate impact-attenuating surfacing materials for in the use on playgrounds has been amply demonstrated by zone of playground equipment can reduce the current difficulty in assessing risk of fall-related injury. In particular, it is believed that the relative merits risk of life-threatening head injuries is reduced when appropriate surfacing materials are installed.

This specification specifies impact attenuation performance requirements for playground surfaces and surfacing materials and provides a diversity means of determining impact attenuation performance using a test method that simulates the impact of a child's head with the surface. The test method quantifies impact in terms of g -max and terminology. Consequently, Head Injury Criterion (HIC) scores. G -max is the goal measure of the maximum acceleration (shock) produced by an impact. The Head Injury Criterion or HIC score is an empirical measure of impact severity based on published research describing the relationship between the magnitude and duration of impact accelerations and the risk of head trauma. The standard includes procedures allowing surfacing materials to be performance-rated before installation and for installed surfacing materials to be tested for conformance with the specification.

The purpose of this specification is to reduce the frequency and severity of fall-related head injuries to children by establishing a uniform and reliable means for measure to compare characteristics of comparing and specifying the materials in order to provide the potential buyer with impact attenuation of playground surfaces. Its use will give designers, manufacturers, installers, prospective purchasers, owners, and operators of playgrounds a useful yardstick by which to measure available means of objectively assessing the performance of surfacing materials as a surface under and around playground equipment and hence of evaluating the associated injury risk.

1. Scope

1.1 This specification covers establishes minimum performance requirements for the impact attenuation requirements, when tested of playground surfacing materials installed within the use zone of playground equipment.

1.2 This specification is specific to surfacing used in accordance conjunction with Test Method F 355; playground equipment, such as that described in Specifications F 1148, F 1487, F 1918, F 1951, and F 2075.

1.3 This specification establishes an impact attenuation performance criterion for playground surfacing materials; expressed as a critical fall height.

1.4 This specification establishes procedures for determining the critical fall height of playground surfacing materials under

¹ This test method specification is under the jurisdiction of ASTM Committee F08 on Sports Equipment and Facilities and is the direct responsibility of Subcommittee F08.63 on Playground Surfacing Systems.

Current edition approved Aug. 10, 1999; Jan. 1, 2004. Published August 1999; January 2004. Originally published as F 1292 – 91; approved in 1991. Last previous edition approved in 1999 as F 1292 – 969.

Annual Book of ASTM Standards, Vol 14.02.

² U.S. CPSC Special Study. Injuries and Deaths Associated with Children's Playground Equipment, April 2001. US Consumer Product Safety Commission, Washington DC.