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Standard Specification for Eye Protective Devices for Airsoft Sports[1]

This standard is issued under the fixed designation F2879; 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 specification applies to eye protective devices (EPDs) designed for use by participants in the sport of airsoft with 6-mm airsoft projectiles. These EPDs are designed to minimize or significantly reduce injury to the eye and adnexa as a result of impact and penetration of airsoft projectiles.

1.2 When airsoft guns are used for target practice with a paper or gel target and a backstop sufficient to prevent ricochet, shooters may wear eye protection (shooting glasses) appropriate for use with firearms, ball bullet (BB) guns or air guns that meet ANSI Z87.1. The balance of this specification applies to EPDs designed for use by participants in tactical sports using airsoft guns.

1.3 EPDs meeting the requirements of this specification offer protection to the eyes and adnexa and not necessarily to any other parts of the head.

~~1.4 *Units*—The values stated in SI units are to be regarded as the standard. No other units of measurement are included in this standard.~~

1.4 This specification does not limit the wearing of eyeglasses or contact lenses when used in conjunction with the EPD based on the information provided by the manufacturer in ~~section~~ 9.2.21.

1.5 *Units*—The values stated in SI units are to be regarded as the standard. No other units of measurement are included in this standard.

1.6 The following information is provided for the laboratory conducting the test for the protection of their personnel: *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~~ safety, health, and ~~health~~environmental practices and determine the applicability of regulatory limitations prior to use.*

1.7 *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. Referenced Documents

2.1 *ASTM Standards:*[2]
D1003 Test Method for Haze and Luminous Transmittance of Transparent Plastics
F2679 Specification for 6 mm Projectiles Used with Airsoft Guns
F2748 Specification for Airsoft Guns
2.2 *ANSI Standards:*[3]
Z80.3 Requirements for Nonprescription Sunglasses and Fashion Eyewear
Z87.1 Practice for Occupational and Educational Eye and Face Protectors
2.3 *CSA Standard:*[4]
Z262.6-02 Specifications for Facially Featured Headforms
2.4 *EN Standard:*[5]
EN 168 Personal Eye Protection—Non-Optical Test Method—Section 17 Headforms

[1] This specification is under the jurisdiction of ASTM Committee F08 on Sports Equipment, Playing Surfaces, and Facilities and is the direct responsibility of Subcommittee F08.57 on Eye Safety for Sports.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

[4] Available from Canadian Standards Association (CSA), 5060 Spectrum Way, Mississauga, ON L4W 5N6, Canada, http://www.csa.ca.

[5] Available from European Committee for Standardization (CEN), Avenue Marnix 17, B-1000, Brussels, Belgium, http://www.cen.eu.

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *adnexa, n*—adjunct parts of the eye, including the orbit, orbital contents, eyelids, and the lacrimal apparatus.

3.1.2 *airsoft field, n*—area where participants actively target and shoot each other with airsoft projectiles using airsoft guns.

3.1.3 *airsoft gun, n*—device specifically designed to expel airsoft projectiles as the result of the release of energy by compressed air, compressed carbon dioxide (CO_2), mechanical springs, battery, or a combination thereof as defined in Specification F2748.

3.1.4 *airsoft projectile, n*—6 mm projectiles used with an airsoft gun which is defined in Specification F2679.

3.1.5 *astigmatism, n*—condition in a lens that creates two axially separated line foci of each object point, the lines being mutually perpendicular; in other words, the lens has two different refractive powers in meridians that are 90° apart.

3.1.6 *base-in, adj*—relating to the type of prism imbalance that tends to cause parallel rays of light passing through a EPD, spaced apart by the interpupillary distance, to converge.

3.1.7 *base-out, adj*—relating to the type of prism imbalance that tends to cause parallel rays of light passing through an EPD, spaced apart by the interpupillary distance, to diverge.

3.1.8 *binocular, adj*—relating to the field of view that is shared by both eyes simultaneously.

3.1.9 *central viewing zone, n*—that part of a lens that has its center in line with the wearer's line of sight when looking straight ahead.

3.1.9.1 *Discussion*—

The zone is circular in shape. For the purpose of this specification, it shall be considered to be 38 mm in diameter. The center of the central viewing zone shall be the point of intersection of the line of sight with the lens as mounted on the headform, as specified by the manufacturer.

3.1.10 *corneal apex, n*—the most anterior point of the cornea when the eye is in the primary position.

3.1.11 *cleanable, adv*—ability of an EPD to be made readily free of dirt or grime without being damaged during an appropriate cleaning process, such as the use of soap and water.

3.1.12 *definition, optical, n*—characteristic of a lens that allows separate distinct points in close proximity to be discerned when looking through the lens.

3.1.13 *dislodgement, n*—relating to the movement or shifting during impact testing as described in section 8 that would result in a gap between the lens and frame that did not exist prior to the testing of more than 1.0 mm or the breaking free of any EPD components within the interior chamber of the EPD.

3.1.14 *eye, n*—relating to the eye of the headform or the eye of a person wearing an EPD or that part of an EPD through which a wearer's eye would normally look.

3.1.15 *eye of the headform, n*—all structures contained within the orbital rim of the headform.

3.1.16 *eye protective device (EPD), n*—device that provides protection to the wearer's eyes against specific hazards encountered in sports.

3.1.17 *fracture, n*—any breach, rupture, or visible crack in the lens.

3.1.18 *haze, n*—fraction of the total transmitted light from a normally incident beam that is not transmitted in a focused condition but scattered by inclusions or surface defects.

3.1.18.1 *Discussion*—

Excessive haze will reduce contrast and visibility.

3.1.19 *headform, n*—as utilized within this standard for the as-worn assessment of EPDs, key dimensions of which are as provided in CSA Z262.6-02 or EN 168.

3.1.20 *lens, n*—transparent part or parts of an EPD through which the wearer normally sees.

3.1.20.1 *Discussion*—

The most common configurations for lenses are single pane and thermal. Thermal lenses are constructed with multiple panes providing a thermal barrier to reduce the effects of fogging. Some lenses may be treated with chemical solutions to reduce fogging.

3.1.21 *lens retention component(s), n*—components, separate from the lens, that are designed to retain the lens in the frame or body of the EPD.