

§ 1203.9

–13 °C (1 °F to 9 °F) for 4 to 24 hours prior to testing.

(c) *High temperature.* The helmet shall be kept at a temperature of 47 °C to 53 °C (117 °F to 127 °F) for 4 to 24 hours prior to testing.

(d) *Water immersion.* The helmet shall be fully immersed “crown” down in potable water at a temperature of 17 °C to 27 °C (63 °F to 81 °F) to a crown depth of 305 mm ±25 mm (12 in. ±1 in.) for 4 to 24 hours prior to testing.

§ 1203.9 Test headforms.

The headforms used for testing shall be selected from sizes A, E, J, M, and O, as defined by DRAFT ISO/DIS 6220–1983, in accordance with §1203.10. Headforms used for impact testing shall be rigid and be constructed of low-resonance K–1A magnesium alloy.

§ 1203.10 Selecting the test headform.

A helmet shall be tested on the smallest of the headforms appropriate for the helmet sample. A headform size is appropriate for a helmet if all of the helmet’s sizing pads are partially compressed when the helmet is equipped with its thickest sizing pads and positioned correctly on the reference headform.

§ 1203.11 Marking the impact test line.

Prior to testing, the impact test line shall be determined for each helmet in the following manner.

(a) Position the helmet on the appropriate headform as specified by the manufacturer’s helmet positioning index (HPI), with the brow parallel to the basic plane. Place a 5-kg (11-lb) pre-load ballast on top of the helmet to set the comfort or fit padding.

(b) Draw the impact test line on the outer surface of the helmet coinciding with the intersection of the surface of the helmet with the impact line planes defined from the reference headform as shown in:

(1) Figure 4 of this part for helmets intended only for persons 5 years of age and older.

(2) Figure 5 of this part for helmets intended for persons age 1 and older.

(c) The center of the impact sites shall be selected at any point on the helmet on or above the impact test line.

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§ 1203.12 Test requirements.

(a) *Peripheral vision.* All bicycle helmets shall allow unobstructed vision through a minimum of 105° to the left and right sides of the midsagittal plane when measured in accordance with §1203.14 of this standard.

(b) *Positional stability.* No bicycle helmet shall come off of the test headform when tested in accordance with §1203.15 of this standard.

(c) *Dynamic strength of retention system.* All bicycle helmets shall have a retention system that will remain intact without elongating more than 30 mm (1.2 in.) when tested in accordance with §1203.16 of this standard.

(d) *Impact attenuation criteria—(1) General.* A helmet fails the impact attenuation performance test of this standard if a failure under paragraph (d)(2) of this section can be induced under any combination of impact site, anvil type, anvil impact order, or conditioning environment permissible under the standard, either with or without any attachments, or combinations of attachments, that are provided with the helmet. Thus, the Commission will test for a “worst case” combination of test parameters. What constitutes a worst case may vary, depending on the particular helmet involved.

(2) *Peak acceleration.* The peak acceleration of any impact shall not exceed 300 g when the helmet is tested in accordance with §1203.17 of this standard.

§ 1203.13 Test schedule.

(a) Helmet sample 1 of the set of eight helmets, as designated in Table 1203.13, shall be tested for peripheral vision in accordance with §1203.14 of this standard.

(b) Helmet samples 1 through 8, as designated in Table 1203.13, shall be conditioned in the ambient, high temperature, low temperature, and water immersion environments as follows: helmets 1 and 5—ambient; helmets 2 and 7—high temperature; helmets 3 and 6—low temperature; and helmets 4 and 8—water immersion.

(c) Testing must begin within 2 minutes after the helmet is removed from the conditioning environment. The helmet shall be returned to the conditioning environment within 3 minutes after it was removed, and shall remain