

CPSA & IN 10/11  
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**LOG OF MEETING**  
**DIRECTORATE FOR ENGINEERING SCIENCES**

**SUBJECT:** Meetings of ASTM Subcommittee F08.53 Headgear Task Groups

**DATE OF MEETING:** May 19-20, 1994      **PLACE:** Montreal, Canada

**LOG ENTRY SOURCE:** Scott Heh, ESME *SH*

**DATE OF ENTRY:** May 23, 1994

**COMMISSION ATTENDEES:** Scott Heh, ESME

**NON-COMMISSION ATTENDEES:** Available upon receipt of meeting minutes.

**SUMMARY OF MEETING**

This log summarizes F08.53 Headgear Subcommittee task group meetings for revising the Headgear Standard Test Method Standard F 1446 and the Bicycle Headgear Performance Specification Standard F 1447. It also summarizes meetings of task groups that are developing performance standards for infant/toddler bicycle headgear and headgear positional stability (roll-off). The following action items were agreed upon by subcommittee members.

A work group was formed to examine the need to change the procedure to condition sample bike helmets to a wet environment prior to testing. The group will examine issues concerning helmet immersion versus water spray techniques for environmental conditioning.

A work group was formed to assure that extent of protection on a helmet is consistent between the bike helmet performance standard (F1447) and the base test method standard (F1446).

A dentist specializing in jaw joint protection will work with the headform task group to examine representation of the human jaw on future test headforms.

A negative ballot vote concerning the change to specify only magnesium impact test headforms was discussed. The negative voter stressed that the change should become effective immediately. The subcommittee agreed that specifying magnesium headforms is needed as soon as possible but that some lag time is needed to give manufacturers and test labs a chance to acquire new magnesium headforms. It was agreed that use of magnesium headforms will become effective starting in 1995.

There was discussion concerning whether an additional helmet sample should be submitted specifically for one impact on a curbstone anvil. The subcommittee voted to keep the

specification for a single curbstone impact as stated in the May ballot of the bicycle helmet standard F1446.

The subcommittee did agree to further study this issue. A task group was formed to review epidemiological data to evaluate the number of head impacts that occur in actual bicycling accidents.

A proposal to adjust the mass of the drop assembly according to the size of the headform was discussed. The subcommittee agreed to ballot a change to the standard such that the drop mass during the impact test will vary according to a formula based on the circumference of the impact headform.

#### Infant/Toddler Headgear Standard

The meeting attendees were divided whether a peak g of 200 or 250 g should be specified. The group voted to specify 250 peak g.

It was noted that the AA size infant headform is not yet being produced. In addition, a AA size headform could not be used on a typical drop test apparatus because the ratio between the mass of the headform and the mass of the drop assembly is not in conformance with the impact test apparatus specifications in the standard. Bell Sports has designed an alternative pendulum drop arm impact test apparatus for helmet impact testing using a AA headform.

A representative from the Snell Memorial Foundation stated that Snell will soon publish the results of an anthropometric study on children's head sizes that could further clarify the dimensions of the proposed AA headform.

The subcommittee agreed to not ballot the proposed infant/toddler headgear standard until the Snell study is completed and manufacturers and test labs have an opportunity to evaluate alternative impact test apparatus.

#### Helmet Roll-Off Test (Positional Stability)

The subcommittee reviewed a new draft of the headgear roll-off test. The group decided that the roll-off test should not be a separate standard but instead will be balloted as an additional test procedure in the headgear base standard F1446. The subcommittee also agreed to specify an extra helmet sample for purposes of performing a roll-off test.

#### Multi-Activity Helmet Standard

The subcommittee reviewed a revised draft of a multi-activity helmet standard. The scope of the draft standard

included recreational activities that were proposed in Washington, D.C. at the February 18, 1994, Harborview Forum on Head Protection in Recreational Sports. Some subcommittee members felt that equestrian activities should not be included in the scope of the standard. Other subcommittee members felt that a standard was not needed since there was nothing to prevent a headgear manufacturer from marketing a multi-activity helmet to meet the performance requirements for all the applicable standards.

There was general agreement that it would be desirable for a performance standard for a "starter helmet" intended for general recreational use for small children up to approximately seven years of age. It was agreed to combine the task group developing the multi-activity helmet standard with the task group developing the infant/toddler helmet standard into a single effort. The combined task group will develop a standard for helmets intended for children up to about seven years of age with a scope that includes bicycling and other activities. The subcommittee agreed not to develop a multi-activity helmet standard for older children and adults.

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