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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 2811-2019

Replacing GB 2811-2007

Head protection - Safety helmets

头部防护 安全帽

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1 Scope

GB 2811-2019 is the Chinese national standard on head protection - safety helmets, in the field of environment and health protection, safety. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 31 December 2019 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 July 2020. Classification: ICS 13.340.20, CCS C73. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Standard specifies the classification and marking, technical requirements, inspection and identification of safety helmets. This Standard applies to safety helmets which are used for head protection in workplaces. This Standard does not apply to head protection equipment for firefighting, emergency rescue, sports and vehicles.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 2812, Test method of safety helmet

3 Terms and definitions

The following terms and definitions are applicable to this document.

3.1 Safety helmets A helmet that protects the user's head from injuries which are caused by falling objects or small splashing objects and other specific factors.

3.2 Shell The shell of the safety helmet.

3.3 Top reinforcement A structure that is used to increase the strength of the top of the shell.

3.4 Harness The general term for the internal parts of the safety helmet.

4.1 Classification

4.1.1 Safety helmets are divided into ordinary type (P) and special type (T) according to their performance. Ordinary safety helmets are safety helmet products that are equipped with basic protective performance, which are used in general workplaces;

4.1.2 Special safety helmets which are equipped with electrical insulation property are classified into grade G and grade E according to the withstand voltage. The grade-G electrical insulation test voltage is 2 200 V; the grade-E electrical insulation test voltage is 20 000 V.

5.1 General requirements

5.1.1 Do not use materials that are toxic, harmful or cause skin allergies and other harm to the human body.

5.2 Basic performance requirements

5.2.1 Headband The headband shall be adjustable according to the applicable head

5.2.5 Part installation The installation of each part of the safety helmets shall be firm, without loosening or slipping.

5.2.6 Mass (excluding accessories) The special-type safety helmet shall not exceed 600 g; the ordinary-type safety helmet shall not exceed 430 g; the relative error between the actual

product mass and the marked mass shall not exceed 5%.

5.2.11 Horizontal distance Measure according to the method that is specified in GB/T 2812; the horizontal distance shall be ≥ 6 mm.

5.2.12 Projections inside the shell The height of sharp protrusions between the inner side of the shell and the harness shall not exceed 6 mm; the protrusions shall be covered with soft cushions.

5.2.16 Shock absorption performance Test in accordance with the method that is specified in GB/T 2812; after high temperature ($50\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$), low temperature ($-10\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$), water immersion (water temperature of $20\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$), and ultraviolet radiation pretreatment, do the impact test; the force that is transferred to the head mold shall not be greater than 4 900 N; no fragments shall fall off the shell.

5.3 Special performance requirements

5.3.1 Flame retardant performance Measure according to the method that is specified in GB/T 2812; the afterflame time shall not exceed 5 s; the shell must not be burnt through.

5.3.4 Extremely high temperature resistance

5.3.4.1 Perform pretreatment in accordance with the method that is specified in GB/T 2812, or in accordance with Appendix A (the method that is specified in GB/T 2812 is preferred for arbitration inspection); perform the impact test after extremely high temperature ($150\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$) and 1 h pretreatment; the force that is transmitted to the head mold shall not be greater than 4 900 N; the shell shall not have any fragments falling off.

6.1 General

6.1.1 Ordinary-type safety helmets shall be tested for the performances that are specified in 5.2.

6.2 Inspection category The inspection category can be divided into delivery inspection and type inspection.

6.3 Delivery inspection The manufacturer shall perform the delivery inspection for the safety helmets batch by batch according to the production batch. The inspection batch is based on one production batch charge. The inspection item name, inspection item clause number, batch range, sample size, non-conforming classification, and judgment array are shown in Table 2.

7 Identification

7.1 Identification composition The identification of the safety helmet consists of a permanent identification and information that is provided by the manufacturer.

7.2 Permanent identification The permanent identification of the safety helmet refers to the identification that is located inside the product body and maintains clear and identifiable throughout the product life cycle. It shall include at least the following.

7.3 Information that is provided by the manufacturer Each safety helmet must be provided with a material that contains the following information, which can be provided to the end user in the form of printed matter, atlas, or wear-resistant adhesive label. It shall at least include the following contents.

Appendix A

(Normative) Extremely high temperature resistance test A.1 Pretreatment device A.1.4 Lifting device The lifting device shall be connected with the temperature control head mold; it can lift the head mold into the box body, so that the lowest point of the tested sample is flush with the bottom surface of the box body. A.2 Pretreatment process After the internal temperature of the box reaches 150 °C, put the test sample on the head mold; start the lifting device to make the sample enter the box; the pretreatment time is 60 min ± 2 min. A.3 Test After the sample is taken out, the test shall be completed within 1 min.