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

GBZ/T 229.3-2010

Replacing GBZ 2-2002 (corresponding content of 4.4.3)

**Classification of occupational hazards at workplaces Part
3:Occupational exposure to heat stress**

工作场所职业病危害作业分级 第3部分:高温

(English Translation)

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Foreword

This part is formulated in accordance with the Law of the People's Republic of China on Prevention and Control of Occupational Diseases.

GBZ/T 229 Classification of occupational hazards at workplaces is published in parts. The following parts are currently planned:

- Part 1: Productive dust;
- Part 2: Chemicals;
- Part 3: Heat stress;
- Part 4: Noise.

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This part is Part 3 of GBZ/T 229 Classification of occupational hazards at workplaces and is the supporting document for the occupational exposure limits for heat in GBZ 2.2-2007 Occupational exposure limits for hazardous agents in the workplace.

This part is revised on the basis of 4.4.3 Classification of work in hot environments of GBZ 2-2002 Occupational exposure limits for hazardous agents in the workplace. From the date of implementation of this part, the corresponding content of GBZ 2-2002 is abolished.

The main revisions of this part are as follows:

- standard terms related to the classification of work in hot environments, such as heat stress and hot thermal environment, have been added;
- the classes of work in hot environments have been redefined;
- the factors of heat exposure time and thermal insulation of clothing have been added to

the classification of work in hot environments;

- the principles of classified management and the instructions for correct use of the classification standard for work in hot environments have been added.

Annex A of this part is normative.

This part was proposed by the Occupational Health Standards Committee of the Ministry of Health.

This part was approved by the Ministry of Health of the People's Republic of China.

Main drafting organizations of this part: Institute of Health and Environmental Medicine, Academy of Military Medical Sciences of the Chinese People's Liberation Army; National Institute for Occupational Health and Poison Control, Chinese Center for Disease Control and Prevention.

The previous editions of the standards replaced by this part are:

- GB 4200-84, GB/T 4200-1997, GB/T 17244-1998, GBZ 2-2002.

1 Scope

This part specifies the classification of work in hot environments at workplaces and the principles for its management.

This part is applicable to the classified management of all kinds of work involving work in hot environments.

This part is not applicable to work in which the cumulative heat exposure per working day is less than 1 hour.

2 Normative references

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

GBZ 2.2 Occupational exposure limits for hazardous agents in the workplace - Part 2: Physical agents

GBZ/T 189.7 Measurement of physical agents in workplace - Part 7: Heat stress

GBZ/T 189.10 Measurement of physical agents in workplace - Part 10: Classification of physical work load

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 heat strain

The systemic physiological response caused by heat stress.

3.2 heat balance

The state in which the body, by regulating its rate of heat production and rate of heat dissipation, makes the heat produced equal to the heat dissipated, so that body temperature is kept in balance.

3.3 heat adaptation

The physiological adaptation process of increased heat tolerance of the body produced by long-term stimulation by a hot environment.

3.4 heat acclimatization

The physiological adaptation process in which an individual's ability to withstand heat intensity is progressively strengthened.

3.5 wet-bulb globe temperature index

Also called the WBGT index; a basic parameter for the comprehensive evaluation of the heat load of the working environment to which the human body is exposed.

Outdoor WBGT = natural wet-bulb temperature (°C) x 0.7 + globe temperature (°C) x 0.2 + dry-bulb temperature (°C) x 0.1

Indoor WBGT = natural wet-bulb temperature (°C) x 0.7 + globe temperature (°C) x 0.3

3.6 environment heat intensity

The intensity with which the temperature, humidity, air velocity and thermal radiation of the environment affect heat dissipation of the human body, expressed by the WBGT index.

3.7 clothing thermal insulation

The property of the clothing worn by workers during production work that affects heat dissipation of the human body, in units of Clo.

3.8 work-rest regimen

The work and rest schedule per unit time (hour) of work in hot environments established to prevent heat injury.

4.1 Classification principles and basic requirements

4.1.1

Classification shall be carried out on the basis of a comprehensive evaluation of the health hazards of the work in hot environments, the environment heat intensity, the duration of exposure to heat, the work intensity and the thermal insulation of the work clothing.

4.1.2

Before classification, the generating processes and distribution of heat at the workplace and the control and protective measures taken shall be identified through on-site inspection, data on previous heat injuries and accidents shall be collected, and the work to be classified shall be determined. Work classification shall be combined with routine monitoring.

4.1.3

The classification results and the effectiveness of the preventive and control measures shall be evaluated periodically. Where the evaluation results indicate a possible inconsistency with the original classification results, or where the production process, raw materials, equipment, etc. change, the work shall be reclassified and new preventive and control measures and recommendations shall be put forward.

4.1.4

The classification results are presented in the form of a classification report. The content of the report includes the basis of classification, the classification results, the preventive and control measures and recommendations, the method of effectiveness evaluation, and the parties that shall be informed.

4.1.5

The employer's responsible person, the managers and the workers concerned shall be informed of the classification report.

4.1.6

The classification data shall be archived.

4.2 Basis and method of classification

The basis for classifying work in hot environments includes the work intensity, the duration of exposure to work in hot environments, the WBGT index and the thermal insulation of the