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

GBZ/T 299.2-2017

**Guidelines for prevention and control of occupational hazards
in battery manufacturing industry -- Part 2: Silicon solar cell**

电池制造业职业危害预防控制指南 第2部分：硅太阳能电池

(English Translation)

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Foreword

This part is formulated in accordance with the Law of the People's Republic GBZ/T 299 "Guidelines for the Prevention and Control of Occupational Hazards in the Battery Manufacturing Industry" is currently divided into the following two parts.

-- Part 1. Battery;

-- Part 2. Silicon solar cells.

This part is the second part of GBZ/T 299.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This section drafted by. Jiangsu Provincial Center for Disease Control and Prevention, Jiangsu Provincial Safety Production Supervision Administration, Yangzhou City Disease Prevention and Control heart.

1 Scope

This part of GBZ/T 299 stipulates the duties, hazard identification and assessment of occupational hazard prevention and control in the silicon solar cell production industry.

Assessment of protective measures, emergency rescue and prevention work.

This section applies to the manufacture of silicon solar cells and the occupational hazard prevention and control of silicon solar cell module manufacturing enterprises.

Battery regeneration operation.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB 2297 solar photovoltaic energy system terminology GB 4064 Safety Design Guidelines for Electrical Equipment GB 5083 General safety and hygiene design of production equipment GB/T 11651 personal protective equipment selection specification Classification and technical conditions of GB/T 16758 exhaust hood GB 15258 chemical safety label writing specification GB 15603 General rules for the storage of common dangerous chemicals GB 16483 Chemical Safety Data Sheet Preparation Regulations GB 17915 Corrosive commodity storage and maintenance technical conditions GB 17916 Poisonous commodity storage and maintenance technical conditions GB/T 18664 Selection, use and maintenance of respiratory protection products GB/T 20097 protective clothing general requirements GB/T 23466 hearing aid selection guide GB 50016 construction design fire protection specification GB 50019 Heating, Ventilation and Air Conditioning Design Code GB 50029 compressed air station design specification GB 50034 Construction Lighting Design Standard GB 50073 clean factory design specification GB/T 50087 industrial enterprise noise control design specification GB 50187 General Plan for Design of Industrial Enterprises GB 50472 Electronic Industry Cleanroom Design Code GB 50704 Silicon Solar Cell Factory Design Specification GBZ 1 industrial enterprise design hygiene standard GBZ 2.1 Exposure limits for workplace hazards Part 1. Chemical hazards GBZ 2.2 Exposure limits for workplace hazards Part 2. Physical factors GBZ 158 workplace occupational hazard warning sign GBZ 159 Sampling specification for monitoring of hazardous substances in the workplace air GBZ/T 160.6 Determination of calcium and its compounds in workplace air toxic substances GBZ/T 160.9 Determination of copper and its compounds in workplace air toxic substances GBZ/T 160.10 Determination of lead and its compounds in workplace air toxic substances GBZ/T 160.17 Determination of potassium and its compounds in workplace air toxic substances GBZ/T 160.18 Determination of

sodium and its compounds in workplace air toxic substances GBZ/T 160.22 Determination of tin and its compounds in workplace air toxic substances GBZ/T 160.29 Determination of toxic substances in workplace air, inorganic nitrogen compounds GBZ/T 160.30 Determination of toxic substances in workplace air - Inorganic phosphorus compounds GBZ/T 160.33 Determination of toxic substances in workplace air toxic substances GBZ/T 160.36 Determination of toxic substances in workplace air GBZ/T 160.37 Determination of toxic substances in workplace air GBZ/T 160.48 Determination of toxic substances in workplace air GBZ 188 Occupational Health Monitoring Technical Specifications GBZ/T 189.3 Measurement of physical factors in workplace - Part 3. Power frequency electric field GBZ/T 189.8 Physical measurement of workplaces - Part 8. Noise GBZ/T 192.1 Determination of dust in workplace air - Part 1. Total dust concentration GBZ/T 194 Code of Practice for Preventing Occupational Poisoning Health Engineering in Workplaces GBZ/T 195 organic solvent workplace, individual occupational disease protective equipment use specification GBZ/T 203 High-toxic goods operation post occupational disease hazard notification specification GBZ/T 205 Code of occupational hazard protection for confined space operations GBZ/T 224 Occupational Hygiene Terminology GBZ/T 225 Employer's Guide to Prevention and Control of Occupational Diseases GBZ/T 229.1 Classification of occupational hazards in the workplace - Part 1. Productive dust GBZ/T 229.2 Classification of occupational hazards in the workplace - Part 2. Chemicals GBZ/T 229.3 Workplace occupational hazard operation classification Part 3. High temperature GBZ 230 Occupational exposure to toxicant hazard classification

3 Terms and definitions

The following terms and definitions defined in GBZ/T 224 and GB 2297 apply to this document.

Silicon solar cell

A solar cell based on crystalline silicon is also called a silicon solar cell or a crystalline silicon cell.

Photovoltaic module

The smallest indivisible solar cell combination device with package and internal connection that can provide DC output separately.

Antireflective coating an optical film applied to the light-receiving surface or cover sheet of a solar cell to reduce reflection of incident light.

Silver paste silver paste A slurry for making electrodes mainly composed of silver and containing other components.

Aluminum paste

A slurry for making electrodes mainly composed of aluminum and containing other

components.

Laminating technology A process of vacuum thermoforming of interconnected solar cells and packaging materials.

4.1 Occupational Health Protection Principles

4.1.1

Prevention and treatment according to law, prevention, and treatment, classification management, and comprehensive management.

4.1.2

Unit self-discipline, full participation, continuous improvement.

4.1.3

Relying on scientific and technological progress, priority is given to the use of processes, technologies and materials that are conducive to the prevention and treatment of occupational diseases.

4.1.4

Maintain the health and related rights of workers, and pay attention to the high-risk groups of occupational diseases, especially migrant workers.

4.2 Employer duties

4.2.1

The employer shall establish an occupational health management system in accordance with the requirements of the Law on the Prevention and Control of Occupational Diseases, and establish full-time occupational health management personnel to promote the prevention and control of occupational diseases, to ensure that workers enjoy the occupational health rights stipulated by the Law on the Prevention and Control of Occupational Diseases, accepting the government, workers and for the supervision of trade union organizations, see GBZ/T 225 for details.

4.2.2

Formulate occupational disease hazard prevention and control plans, including identification of occupational hazards and their hazards, implementation of occupational hazard prevention and control Method and schedule; conduct occupational hazard assessment of new, modified and expanded projects; implement identification, evaluation and control for occupational hazards Funding for occupational disease prevention and control such as occupational health training; ensuring that workers participate in the development of occupational hazard control plans and understand relevant content;

The occupational hazard control plan is reviewed, and revised at least once a year, with