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

GB/T 30983-2014

Test method for optical properties of photovoltaic glass

光伏用玻璃光学性能测试方法

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Quarantine;
Standardization Administration of the PRC**

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules. The standard proposed by China Building Materials Federation. The industry standard by the National Standardization Technical Committee special glass and glass (SAC/TC447) centralized. This standard is drafted by: China Building Materials Certification & Inspection Group Co., Ltd., the national security glass and quartz glass Quality Supervision, Inspection Inspection center, China Building Materials Certification & Inspection Group Co., Ltd. Beijing Tianyu. Participated in the drafting of this standard. Zhangzhou Kibing Glass Co., Ltd. Changzhou Amalek Dayton, Air Sanxin Co., Lutheran photovoltaic industry (Anhui) Holdings Ltd., Beijing Aobo Tai Technology Co., PerkinElmer Instruments (Shanghai) Co., Ltd., Shenzhen City, a benefit Technology Development Co., Ltd. The main drafters of this standard. Pang Shi-hong, British blue-designate, I'm on the court, Lu Hao, TUNG Ching-sai, Zhang Min, Yu Lu, Han Song, Shandong University, Yang Xuedong, Hao Yun, Wang Dong, Jiang Xi Meng, Wangrun Mei. Photovoltaic glass optical performance test method

1 Scope

China's national test method for the optical properties of photovoltaic glass. It specifies the terms and definitions, the instrument, the specimens and standards, the test procedure, the calculation of the parameters and the test report, and it applies to the measurement of spectral transmittance, spectral reflectance and spectral haze on transparent conductive oxide coated glass and on rolled photovoltaic glass, and to the calculation of haze, transmittance and reflectance from those measurements. Photovoltaic glass is the front sheet of a solar module, and it is the one component whose optical performance directly multiplies the output of everything behind it. A one per cent change in transmittance is a one per cent change in the module's power, for the whole of a twenty-five year life. That makes the accuracy of these measurements a commercial matter of some size, and before this standard the industry measured transmittance in several incompatible ways. The document specifies a spectrophotometric arrangement built around an integrating sphere of at least 150 mm diameter, with a stable source, a monochromator, a collimating system producing parallel light of the required wavelength and intensity, and a detector, covering the wavelength range from 300 to 1100 nanometres - which is the range over which a

crystalline silicon cell responds. Haze is defined as the ratio of the transmitted flux scattered more than 2.5 degrees from the incident direction to the total transmitted flux, and spectral haze as the haze value at each wavelength. Haze matters because a textured or rolled photovoltaic glass is designed to scatter: light diffused into the cell travels a longer path and is more likely to be absorbed, so haze is a designed property to be measured rather than a defect. Issued on 24 July 2014 and in force since 1 March 2015.

This standard specifies the terms of photovoltaic glass optical performance test involved, definitions, instruments, samples and standards, test procedures, meter parameters Operator, test report. This standard applies to the transparent conductive oxide film glass, rolled glass photovoltaic haze, the spectral transmittance, reflectance spectra measurements and spectral fog Degree, haze, transmittance, reflectance calculated.

2 Terms and definitions

The following terms and definitions apply to this document.

2.1 Transparent conductive oxide film glass transparentconductiveoxidecoatedglass TCO glass TCOglass Glass coated with a transparent conductive oxide film.

2.2 Haze haze And through the specimen deviates from the incident direction of more than 2.5 ° scattering and transmission flux flux ratio.

2.3 Spectral haze spectraldistributionofhaze Sample haze value at different wavelengths.

3 Instrument

3.1 The instrument should contain the following sections.

- Stable light source system;
- Monochromator;
- Capable of generating the same wavelength and intensity parallel light system;
- Has a photodetector and the entrance of the integrating sphere, it should be not less than 150mm diameter integrating sphere, elected to use a different size When an integrating sphere, the area of \u200b\u200ball openings and integrating sphere integrating sphere surface area should be less than 4%;
- Integrating sphere reference optical path as shown in FIG.

3.2 Instrument wavelength range should include 300nm ~ 1100nm. Wavelength accuracy of the instrument does not exceed 3.3 1nm.

3.4 photometric accuracy of the instrument should not exceed 1% accuracy should not exceed 0.5%.

3.5 illumination and detection geometry. the angle between the optical axis of the illumination beam normal to the sample surface is not more than 10° , one light beam illumination line The angle between the optical axis is not more than 3° .

3.6 using a single beam instruments to measure the transmittance and high accuracy to be achieved, it is desirable to use double beam instrument calibrated standard board.

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