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

GB/T 29595-2013

**Sealant materials in terrestrial photovoltaic modules - Silicone
sealants**

地面用光伏组件密封材料 硅橡胶密封剂

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Quarantine;
Standardization Administration of the PRC**

Table of Contents

- 1 Scope
- 2 Normative references
- 3 Abbreviations

Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules. The standard proposed by China Petroleum and Chemical Industry Association. This standard by the National Standardization Technical Committee adhesive (SAC/TC185) centralized. This standard was drafted. Beijing Tianshan new materials technology Co., Ltd., Wuxi Suntech Power Co., Ltd., Shanghai rubber Institute of products, Yingli, Canadian Solar Power Group, Changzhou Trina Solar Energy Co., Ltd., Guangzhou Baiyun Chemical Industrial Co., Ltd., Dow Corning (China) Investment Co., Ltd. The main drafters of this standard. Li Bai India, Zhengmiao Sheng, Sun Yuhai, Chen Guoqing, Golden Satellite, Tang Ying-tang, Zhoucheng Bo, Zhang Guangchun, Xiu Xiang, Xu Mei, Liang Zhe, Wang Debo, Fan Qin, Chensi Bin, Zhao. Terrestrial photovoltaic modules sealing material silicone rubber sealant

1 Scope

China's national standard for the silicone sealants used in terrestrial photovoltaic modules. It specifies the technical requirements, the test methods, the inspection rules and the marking, transport and storage of the silicone rubber sealants used for bonding the module frame, for bonding and potting the junction box, and for sealing the busbars of thin film modules and bonding the mounting brackets. It applies to the silicone sealants used in crystalline silicon and thin film photovoltaic modules. A photovoltaic module is warranted for twenty-five years, outdoors, and the sealant is the material that has to survive that alongside the glass. It does three jobs. It bonds the frame to the laminate, which is a structural joint carrying wind and snow loads on a panel that acts as a sail. It bonds and potts the junction box, which is where the cables enter and where water getting in produces a short circuit or an arc. And on thin film modules it seals the busbar exits. In all three the joint is between materials that expand at very different rates - glass, aluminium, polymer backsheet - through a daily temperature cycle of tens of degrees for a quarter of a century, so the sealant has to stay flexible rather than merely adhering. What it must not do is as important. A sealant that outgasses acetic acid while curing corrodes the cell interconnects and the junction box contacts, which is why neutral cure chemistry matters here in a way it does not in a bathroom. A sealant that emits volatiles that condense on the inside of the glass reduces the module's output permanently. So the standard specifies the mechanical

and adhesion properties, the cure behaviour, the electrical properties, the resistance to ultraviolet light, heat, humidity and thermal cycling, and the compatibility with the materials it touches. Issued on 19 July 2013 and in force since 1 December 2013.

This standard specifies the ground sealing photovoltaic module frame, junction box and back bonding, junction box potting, sealing and film battery bus bar Technical requirements silicone rubber sealant bracket adhesive being used, test methods, inspection rules, marking, transportation and storage. This standard applies to crystalline silicon photovoltaic modules and thin-film photovoltaic module assembly with silicone rubber sealant. This standard does not apply to the assembly of PV modules with a condenser with a silicone rubber sealant.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 528 vulcanized rubber or thermoplastic rubber tensile stress strain properties (GB/T 528-2009,

ISO 37.2005, IDT) Determination of

GB/T 1692 vulcanized rubber insulation resistance

GB/T 1695 vulcanized rubber frequency breakdown voltage strength and determination withstand voltage

GB/T 2408 Determination of burning plastic properties of horizontal and vertical (GB/T 2408-2008,

IEC 60695-11-10. 1999, IDT) Determination of

GB/T 2794 Adhesive viscosity of the semi-cylindrical viscometer method

GB/T 4207 Determination of solid insulating materials resistance to tracking index (GB/T 4207-2012, IEC 60112.2009, IDT)

GB 4943.1-2011 Safety of information technology equipment - Part 1. General requirements (IEC 60950-1.2005, MOD)

GB/T 7124 Determination of tensile shear strength of the adhesive (rigid material of rigid material) (GB/T 7124-2008, ISO 4587.2003, IDT)

GB/T 9535-1998 Crystalline silicon terrestrial photovoltaic modules - Design qualification and type approval (

IEC 61215.1993) Dry time is measured.

GB/T 13477.5-2002 Test method for building sealants - Part 5

3 Abbreviations

The following abbreviations apply to this document. CTI relative tracking index/comparative tracking index (ComparativeTrackingIndex) HAI high current arc ignition test (HighCurrentArcResistancetoIgnition)

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