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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 37882-2019

Silicone adhesive for back rail bonding in terrestrial photovoltaic modules

地面光伏组件背轨粘接用有机硅胶粘剂

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Table of Contents

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard was proposed by the China Petroleum and Chemical Industry Federation. This standard is under the jurisdiction of the National Adhesive Standardization Technical Committee (SAC/TC185). This standard was drafted. Beijing Tianshan New Material Technology Co., Ltd., Sika (China) Co., Ltd., Dow (China) Investment Co., Ltd. China Building Materials Inspection and Certification Group Co., Ltd., Zhengzhou Zhongyuan Slander High-Tech Co., Ltd., Shanghai Jianke Inspection Co., Ltd., Hai Rubber Products Research Institute Co., Ltd., Trina Solar Energy Co., Ltd. The main drafters of this standard. Xiao Ming, Chen Yaju, Xia Wei, Cao Yu, Zhang Danwu, Zhang Jianqing, Chen Jifang, Zhang Yuan, Shuai Lifang, Wang Min, Xu Yang. Silicone adhesive for back-rail bonding of ground photovoltaic modules

1 Scope

China's national standard for the silicone adhesive used to bond mounting rails to the back of a photovoltaic module. It specifies the technical requirements, the test methods, the inspection, and the marking, transport and storage. Bonding the rail rather than clamping the frame is what allows a frameless module, and it removes a set of drilled holes and metal parts from the assembly - but it also makes an adhesive joint responsible for holding a panel of a square metre or more onto a roof for twenty-five years, against wind uplift, snow load and thermal cycling. Silicone is used because nothing else survives that exposure: it keeps its elasticity from well below freezing to well above the temperature a module reaches in summer sun, it is unaffected by ultraviolet, and it stays flexible enough to absorb the differential expansion between a glass laminate and an aluminium rail. The requirements are therefore about retained adhesion after ageing rather than about initial strength.

This standard specifies the technical requirements, test methods, inspection and marking, transportation and storage of silicone adhesives for back-rail bonding of ground photovoltaic modules. Save and so on. This standard is applicable to silicone adhesives for

the back-rail structure bonding of crystalline silicon photovoltaic double-glass components and thin film modules. This standard does not apply to photovoltaic modules with concentrators.

2 Normative references

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

GB/T 528 Determination of tensile stress-strain properties of vulcanized rubber or thermoplastic rubber

GB/T 1692 vulcanized rubber insulation resistivity determination

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

GB/T 2943 Adhesive Terminology

GB/T 7123.1-2015 Determination of the operational time of multi-component adhesives

GB/T 7124 Determination of tensile shear strength of adhesives (rigid materials to rigid materials)

GB/T 9535-1998 Design, identification and characterization of crystalline silicon photovoltaic modules for ground use

GB/T 10125-2012 Artificial atmosphere corrosion test salt spray test

GB/T 13477.4-2017 Test methods for building sealing materials - Part 4

GB/T 13477.5-2002 Test methods for building sealing materials - Part 5

GB/T 13477.8-2017 Test methods for building sealing materials - Part 8. Determination of tensile bond

GB 16776-2005 Silicone structural sealant for construction

GB/T 31113-2014 Test method for adhesive flow resistance

3 Terms and definitions

The following terms and definitions as defined in GB/T 2943 apply to this document.

3.1 Back rail backrail The part used to connect the PV modules to the brackets.

Note. Depending on the application, it is also called hooks, brackets, etc.

4 Requirements

4.1 Appearance Appearance should be even and delicate, no bubbles, agglomeration, gel, crust, no precipitates.