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

**GB/T 35307-2023**

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**Granular polysilicon produced by the fluidized bed method**

流化床法颗粒硅

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### Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents" Drafting. This document replaces GB/T 35307-2017 "Fluidized Bed Granular Silicon". Compared with GB/T 35307-2017, except for structural adjustments and compilation In addition to editorial changes, the main technical changes are as follows:

- a) Changed the scope (see Chapter 1, Chapter 1 of the.2017 edition);
- b) The method of indicating the grade of granular silicon has been changed (see Chapter 4, 4.1 of the.2017 edition);
- c) Changed the technical index requirements for granular silicon (see 5.1, 4.2 of the.2017 edition);
- d) Changed the particle size requirements for special grade granular silicon (see 5.2.1, 4.3.1 of the.2017 edition);
- e) Changed the surface quality requirements for granular silicon (see 5.3, 4.4 of the.2017 edition);
- f) The test method for silicon carbon content of particles has been changed (see 6.3, 5.3 of the.2017 edition);
- g) The test method for silicon hydrogen content of particles has been changed (see 6.4,

### 1 Scope

China's national standard for granular polysilicon made by the fluidized bed reactor route. It specifies the grades, the technical requirements, the test methods, the inspection rules, the

marking, packaging, transport and storage, the accompanying documents and the order content. Polysilicon is the feedstock of the entire solar industry, and almost all of it is made by the Siemens process: silicon is deposited from a gas onto heated rods inside a bell jar, which works, produces very pure material, and consumes an enormous amount of electricity because those rods must be held near 1100 degrees C while the walls stay cool. The fluidized bed route deposits silicon instead onto seed particles kept suspended in an upward gas flow, which is continuous rather than batch, needs a fraction of the energy, and yields free-flowing granules rather than rods that must be broken up. Those granules also load a crucible far better than broken chunks. The reasons it has not displaced Siemens entirely are purity and surface contamination, which is what this standard's grades address.

This document specifies the grades, technical requirements, test methods, inspection rules, marking, packaging, transportation, storage and follow-up of fluidized bed granular silicon. line documents and order form contents. This document applies to granular polycrystalline silicon (hereinafter referred to as granular silicon) produced by the fluidized bed method using chlorosilane and silane gas as raw materials.

## 2 Dynamic image analysis method

GB/T 24581 Determination of Group III and V impurity content in silicon single crystals by low-temperature Fourier transform infrared spectroscopy

GB/T 31854 Inductively coupled plasma mass spectrometry measurement method for metal impurity content in silicon materials for photovoltaic cells

GB/T 35306 Determination of carbon and oxygen content in silicon single crystals by low-temperature Fourier transform infrared spectroscopy

GB/T 35309 Procedure for evaluation of granular polycrystalline silicon using zone melting method and spectral analysis method

GB/T 40566 Determination of silicon hydrogen content in granules by fluidized bed method Pulse heating inert gas fusion infrared absorption method

## 3 Terms and definitions

The terms and definitions defined in GB/T 14264 apply to this document.

## 4 Grades

The grade indication of granular silicon should comply with the regulations of GB/T 14844.

## 5 Technical requirements

5.1 Technical indicators The grade of granular silicon and related technical indicators should

comply with the provisions of Table 1.

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