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CCS Q 32



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

**GB/T 37258-2018**

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**Silicon nitride ceramic powder**

氮化硅陶瓷粉体

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**Q 32****Foreword**

This standard was drafted in accordance with the rules given in GB/T 1.1—2009.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The issuing authority of this document shall not be held responsible for identifying any or all such patent rights.

This standard is under the jurisdiction of the National Technical Committee on Structural Ceramics of Standardization (SAC/TC 194).

**1 Scope**

This standard specifies the terms and definitions, classification and product designation, technical requirements, test methods, inspection rules, marking, packaging, transportation and storage of silicon nitride ceramic powder.

This standard is applicable to silicon nitride ceramic powder manufactured by carbothermal reduction and nitridation method, imide thermal decomposition method, gas phase synthesis method, and self- propagating high-temperature synthesis method with silicon content greater than or equal to 37%, and For other production methods, reference may be made to this standard.

**2 Normative references**

The following documents are indispensable for the application of this document. For dated references,

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

**3 Terms, definitions and product designation****3.1 Terms and definitions**

Powder of silicon nitride with two crystal forms.

**3.2 Product designation**

3.2.1 Classification according to chemical composition Powder is classified according to the mass fraction of impurity elements N, O, Fe, Al, Ca, C and phase composition, with  $\alpha$ -phase silicon nitride powder classified as grades 1, 2, 3, and 4; and  $\beta$ -phase silicon nitride powder classified as grades 1 and 2.

3.2.2 Classification according to particle size distribution Powder is classified according to median particle size and particle size range, with silicon nitride powder classified as grades 1, 2, 3, and 4.

Product code designation: Letter code—Chemical composition grade code—Particle size grade code.

## 4 Technical requirements

### 4.1 Appearance

The product shall be a fine powder with good fluidity and no visible foreign matter.

### 4.2 Particle size distribution

The median particle size and particle size range of silicon nitride powder shall comply with the requirements of grade 4 as shown in Table 1.

### 4.3 Crystal structure

Type A powder is mainly hexagonal  $\alpha$ -phase or orthorhombic  $\alpha$ -phase, Type B powder is mainly hexagonal  $\beta$ -phase.

### 4.4 Chemical composition

## 5 Test methods

### 5.1 Appearance

### 5.2 Particle size distribution

Determined using the laser diffraction method according to GB/T 19077.

### 5.3 Crystal structure

Determined using X-ray diffraction method according to JY/T 010.

### 5.4 Phase composition

Determined using X-ray diffraction method according to JC/T 2342.

### 5.5 Content of nitrogen, oxygen and carbon elements

Determined using the methods specified in GB/T 16555—2008.

### 5.6 Content of iron, calcium and aluminum elements

## 6 Inspection rules