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

GB/T 9442-2024

Silica sand for foundry

铸造用硅砂

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Foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting: This document replaces GB/T 9442-2010 "Silica sand for foundry": Compared with GB/T 9442-2010, in addition to structural adjustments and editorial In addition to the modifications, the main technical changes are as follows:

- a) The scope has been changed (see Chapter 1, Chapter 1 of the:2010 edition);
- b) Added the terms of roasted sand, high temperature linear expansion rate, conductivity of silica sand for casting, three-sieve concentration, bulk density, and true density and definitions (see Chapter 3, Chapter 3 of the:2010 edition);
- c) The classification and brand names have been changed (see Chapter 4, Chapter 4 of the:2010 edition);
- d) The mud content requirement has been changed (see 5:2, 5:2 of the:2010 edition);
- e) The moisture content requirement has been changed (see 5:4, 5:4 of the:2010 edition);
- f) The acid consumption value requirements have been changed (see 5:5, 5:5 of the:2010 edition);
- g) The requirements for fine powder content have been changed (see 5:7, 5:7 of the:2010 edition);
- h) Added requirements for burn-off, high temperature linear expansion rate, bulk density, true density, pH value and conductivity of silica sand for casting (see 5:8~5:13);
- i) Added test methods for high temperature linear expansion rate, bulk density, true density, pH value and conductivity (see 6:4 to 6:9);
- j) The inspection rules have been changed (see Chapter 7, Chapter 7 of the:2010 edition);
- k) Packaging, labeling, transportation and storage have been changed (see Chapter 8, Chapter 8 of the:2010 edition);
- l) Added the determination method of high temperature linear expansion rate of silica sand

for casting (see Appendix D);

m) Added the method for determining the bulk density of silica sand for casting (see Appendix E);

1 Scope

GB/T 9442-2024 is the Chinese standard for foundry silica sand, the base material of the great majority of sand castings. The properties that matter to a foundry are not obvious from the material's name: the silica content and the clay content determine the refractoriness and the binder demand, the grain fineness and the distribution determine the surface finish and the permeability, the grain shape determines the flowability and the compaction, the acid demand value determines whether an acid-catalysed binder will cure at all, and the moisture and loss on ignition determine consistency from delivery to delivery. The standard sets the classification and designation by silica content, grain fineness and grain shape, then the requirements for each of those properties with their permitted ranges, and the test methods for determining them, followed by the inspection rules and the marking, packaging, transport and storage. China is the largest casting producer in the world. It took effect on 25 April 2024.

This document specifies the classification and grade, technical requirements, test methods, inspection rules, packaging, marking, transportation and Storage: This document applies to silica sand used for molding and core making in foundry production, including natural silica sand such as washed sand, scrubbed sand, selected sand, roasted sand, and artificial silica sand: Industrial silica sand:

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document: For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document:

GB/T 601 Preparation of standard titration solutions for chemical reagents

GB/T 603 Preparation of preparations and products used in chemical reagent test methods

GB/T 2684 Test methods for foundry sand and mixtures

GB/T 5071 Test method for true density of refractory materials

GB/T 5611 Casting Terminology GB/T 6003:

1 Technical requirements and inspection of test sieves Part 1: Wire mesh test sieves

GB/T 6682 Specifications and test methods for water used in analytical laboratories

GB/T 7143 Chemical analysis method for silica sand for foundry

3 Terms and definitions

The terms and definitions defined in GB/T 5611 and the following apply to this document:

1 Quartz (SiO_2) is the main mineral component, and the particle size is 0.020mm~3.350mm:

Note: According to the different mining methods, it can be divided into natural silica sand and artificial silica sand; according to the different processing methods, it can be divided into washed sand, scrubbed sand, selected sand, roasted sand, etc: 3.2 baked sand
Natural silica sand for casting that has been calcined at high temperature (600°C ~ 900°C):
3:

3 The linear change of the silica sand sample particles after free expansion at 1000°C and the original size of the sample particles at room temperature (25°C) The percentage rate (%): 3:

4 The ability of a solution containing a certain amount of silica sand to conduct electric current:

Note: Generally used to describe the cleanliness of silica sand surface (electrochemical properties):