TECHNICAL DATA SHEET

SBA-15 Mesoporous Silica

Mesoporous silica · 2D hexagonal p6mm pores · hydrothermal method · BET ≥550 m²/g · pore diameter 6–11 nm · calcined, ready to use



ACS Material SBA-15 Mesoporous Silica — Representative Packaging

ACS Material SBA-15 Mesoporous Silica, 10 g (MSB15011). Image shown for reference; label and packaging may vary.

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SECTION I

Product Overview

SBA-15 (Santa Barbara Amorphous-15) is a mesoporous silica (CAS No. 7631-86-9) synthesized under acidic conditions using the triblock copolymer Pluronic P123 ($EO_{20}PO_{70}EO_{20}$) as the structure-directing template and tetraethoxysilane (TEOS) as the silica source. Its uniform two-dimensional hexagonal (p6mm) pores, narrow pore-size distribution and thick pore walls give it high hydrothermal and mechanical stability.

ACS Material SBA-15 is prepared by the hydrothermal method and calcined in air at 823 K for 6 hours, so it is supplied as a white powder that is ready to use directly. It has a particle size of 1–4 μm, a pore diameter of 6–11 nm, a pore volume of 1.46 cm^3/g, a BET surface area of ≥550 m^2/g, comparative crystallinity of ≥90% and Na_2O ≤0.1%. Typical SEM, TEM, XRD and BET data are included in this data sheet.

SECTION II

Core Advantages

- **Ordered mesopores** — 2D hexagonal p6mm, narrow pore-size distribution.
- **High surface area** — BET ≥550 m^2/g.
- **High purity** — Na_2O ≤0.1%; crystallinity ≥90%.
- **Thick pore walls** — high hydrothermal and mechanical stability.
- **Large pore volume** — 1.46 cm^3/g.
- **Ready to use** — calcined; template already removed.

SECTION III

Specifications

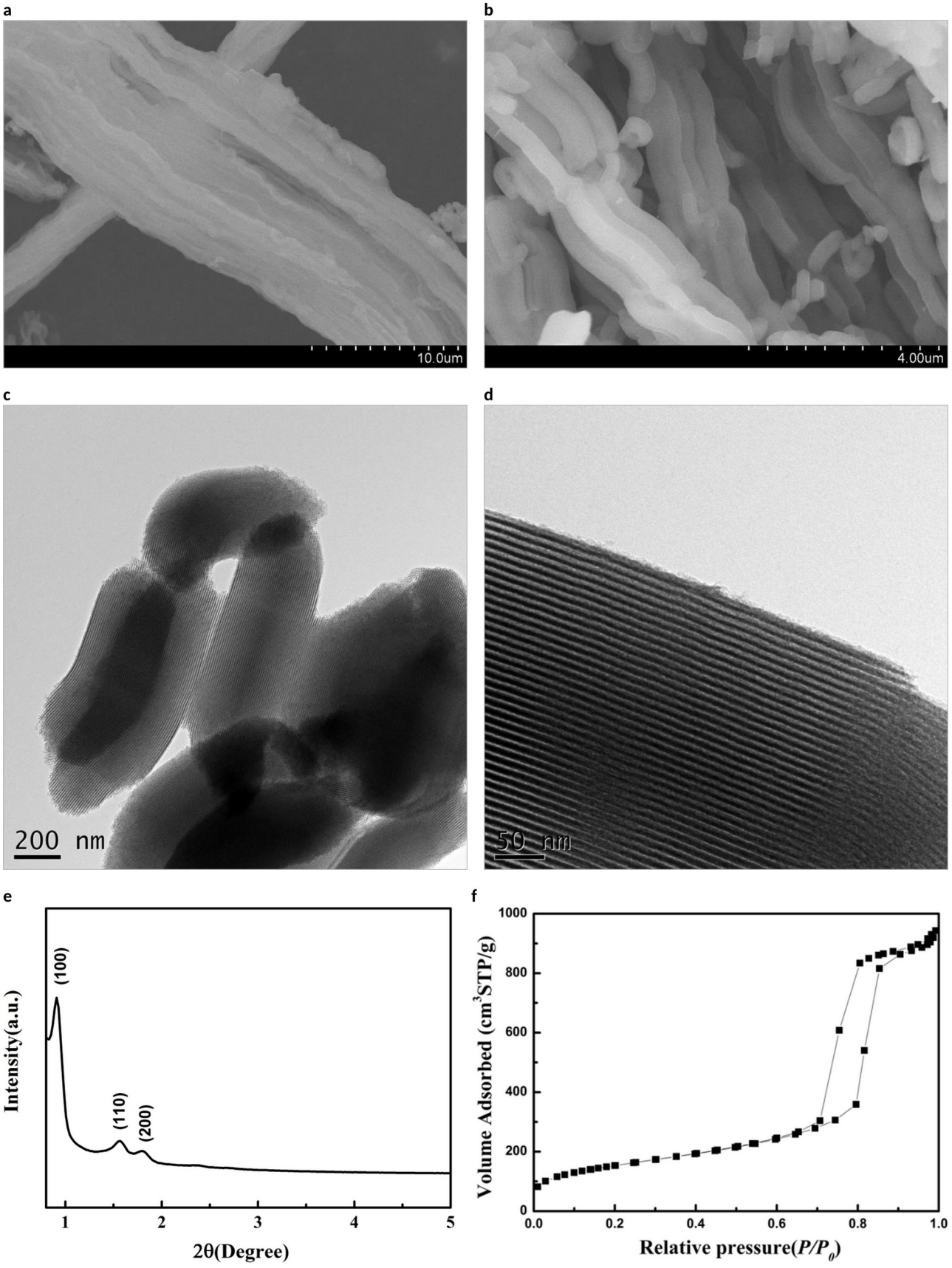
Technical data

Specifications	
Product name	SBA-15 Mesoporous Silica
Brand	ACS Material
Synonyms	SBA-15, Santa Barbara Amorphous-15, mesoporous silica
CAS No.	7631-86-9
Silica source / template	TEOS / Pluronic P123 ($EO_{20}PO_{70}EO_{20}$), acidic conditions
Preparation method	Hydrothermal method
Supplied	Calcined in air (823 K, 6 h), ready to use
Appearance	White powder
Phase	2D hexagonal (p6mm)
Particle size	1–4 μm
Pore diameter	6–11 nm
Pore volume	1.46 cm^3/g
BET surface area	≥550 m^2/g
BJH desorption cumulative pore volume	0.6793 cm^3/g
Comparative crystallinity	≥90%
Na_2O	≤0.1%
Bulk density	0.067 g/cm^3
Tap density	0.145 g/cm^3
Collapse temperature	About 750 °C

Ordering information

Package	Product No.
10 g	MSB15011
20 g	MSB15012

Typical data



a SEM image of ACS Material SBA-15, ×4,000 (scale bar 10.0 µm). **b** SEM image, ×13,000 (scale bar 4.00 µm). **c** TEM image (scale bar 200 nm). **d** TEM image at higher magnification (scale bar 50 nm). **e** Small-angle XRD pattern. **f** N_2 adsorption–desorption isotherm.

SECTION IV

Applications

ACS Material SBA-15 is used as a catalyst carrier, as a templating agent and in nanomaterials.

Documented uses include catalyst support, hard templating, drug delivery and controlled release, adsorption and water purification, CO_2 capture and direct air capture, confinement and separation studies, gas and thermal-energy storage, and food, beverage and materials science.

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