

# HEBEI WOQIN - SILICA AEROGEL POWDER & GRANULE

## TECHNICAL DATA SHEET: MASTER EDITION (V3.0)

**Product Description:** Hebei Woqin's Hydrophobic Silica Aerogel series represents the pinnacle of nano-porous material technology. Utilizing advanced atmospheric drying, we offer a comprehensive product matrix: from ultra-fine powders (as fine as 7 $\mu$ m) for electronic-grade precision, to specialized porous granules for extreme thermal insulation (0.0146 W/m·K) and high-capacity environmental adsorption.

### Section 1: Core Physical & Thermal Properties

Property	Value / Result	Test Standard / Method
Thermal Conductivity*	0.0146 W/(m·K) (@ 25°C)	ASTM C177 / GB/T 10295
Combustibility & Fire Rating	Class A1 (Non-combustible)	EN 13501-1 / GB 8624
Continuous Service Temp	-200°C to 400°C (In Air)	Industry Standard
Peak Service Temp (Inert)	Up to 650°C (Inert/Vacuum)	Internal Lab Test
Hydrophobicity (Water Repellency)	> 99%	GB/T 10299
Linear Shrinkage*	≤ 0.5% (at 650°C)	ASTM C356
Bulk Density	40 - 60 kg/m <sup>3</sup> (Adjustable)	ISO 2811 / GB/T 6750
Appearance	White Ultra-fine Powder / Granule	Visual Inspection

#### \*Technical Footnotes:

Thermal Conductivity (0.0146 W/m·K) is measured by a specialized third-party research laboratory; actual values may vary slightly based on specific batch formulations.

Linear Shrinkage and peak temperatures are typical values for silica aerogel matrices. In air, long-term use above 400°C may cause surface oxidation.

## Section 2: Particle Size & Application Matrix

We provide a comprehensive range of particle sizes to meet the stringent requirements of high-tech global supply chains.

Grade Code	Particle Size (D90)	Target Application & Market
Electronic Grade	7 µm	<b>Precision Electronics:</b> Engineered for precision electronics and high-tech supply chains. Used in ultra-thin battery thermal barriers and electronic insulation films.
Textile Grade	15 µm	<b>Advanced Apparel:</b> Blended with fibers or coatings for ultra-lightweight winter gear and thermal insoles.
Coating Grade	30 - 50 µm	<b>Industrial Specialty:</b> Additives for high-performance insulation coatings, aerogel pastes, and functional mortars.
Granule Grade	1 - 5 mm	<b>Bulk Filling &amp; Environmental:</b> Used for cryogenic insulation, loose-fill cavities, and high-efficiency purification adsorption.

## Section 3: Global Compliance & Quality Assurance

Hebei Woqin is committed to maintaining the highest standards of chemical safety and environmental compliance. Our aerogel products are rigorously tested to meet the stringent entry requirements of high-tech supply chains in South Korea, the European Union, and North America.

Certification / Registry	Compliance Status	Remarks
K-REACH (South Korea)	LOC (Letter of Confirmation) Secured	Fully compliant with South Korean chemical regulations. Verified for high-tech electronics supply chains.
EU REACH SVHC	Compliant (SGS Verified)	Screened for 240+ Substances of Very High Concern (SVHC). Safe for use in European markets.
RoHS 2.0 / Halogen-Free	Compliant	100% Lead-free, Mercury-free, and Halogen-free. Essential for battery and precision electronics.
ISO Management	ISO 9001 / 14001 / 45001	Manufactured under international Quality, Environmental, and Occupational Health & Safety systems.

## Section 4: Health, Safety & Environmental (HSE)

Category	Safety Profile & Characteristics
Toxicity	Non-toxic and biologically inert. No acute or chronic health hazards detected under normal use.
Skin / Eye Contact	May cause mild mechanical dryness or irritation. Standard PPE (gloves/goggles) is recommended for handling.
Inhalation Safety	Synthetic amorphous silica (non-crystalline). No risk of silicosis.
Eco-Toxicity*	LC50 (Zebrafish) > 10,000 mg/l (Non-hazardous to aquatic life).
VOC / Outgassing	Zero VOC. No harmful outgassing even at elevated temperatures.

\*Note: Eco-toxicity data and biological safety metrics are referenced from standardized silica aerogel ecotoxicological studies and industry-leading research test reports.

## Section 5: Adsorption & Purification Performance (Environmental Grade)

*Note for Professionals: The following adsorption metrics apply specifically to Hebei Woqin's specialized high-porosity granules (typically 1-5 mm). For precision insulation applications using 7µm - 50µm powders, please refer to the thermal specifications in Section 1 and Section 2.*

Hebei Woqin's aerogel granules are engineered with an extraordinary nano-porous architecture, providing a massive internal surface area that acts as a "molecular sponge" for both liquid organic pollutants and gas-phase VOCs.

### 5.1 Liquid-Phase Adsorption (Organic Solvents & Oils)

Our granules are highly hydrophobic (repelling water) and oleophilic (absorbing oils), making them ideal for selective oil-water separation.

Target Pollutant	Adsorption Capacity (Times by Weight)	Characteristic
Dichloroethane	27.18 Times	Instantaneous saturation; high retention.

Target Pollutant	Adsorption Capacity (Times by Weight)	Characteristic
0# Diesel Oil	18.42 Times	High selectivity; effective in aquatic environments.
Benzene	18.01 Times	Rapid capture of aromatic hydrocarbons.
Water Absorption	≤ 0.30%	<b>Water-repellent:</b> Floats indefinitely on water.

### 5.2 Gas-Phase Adsorption (Air Purification & VOCs)

The porous matrix effectively "traps" toxic gas molecules, significantly outperforming traditional activated carbon in removal efficiency.

Target Gas / VOC	Adsorption Capacity (mg/g)	Primary Source
Formaldehyde	267.0 mg/g	Resins, adhesives, indoor furniture.
Toluene	249.9 mg/g	Industrial paints, coatings, solvents.
Nicotine	179.1 mg/g	Second-hand and third-hand smoke residues.
Carbon Monoxide (CO)	High-Efficiency Filtration	Exhaust fumes and incomplete combustion.

### 5.3 Advanced Structural Metrics

Physical Property	Value / Result	Testing Method
Specific Surface Area	715.82 m <sup>2</sup> /g	N <sub>2</sub> Adsorption (BET Method)
Pore Volume	4.12 cm <sup>3</sup> /g	BJH Method
Average Pore Diameter	23.0 - 26.0 nm	Nano-porous distribution

## Section 6: Industrial & Environmental Application Scenarios

Industry Sector	Application Details	Performance Advantage
<b>Environmental Remediation</b>	Emergency response for offshore oil spills and industrial chemical leakage.	Rapidly recovers oil from water surface; buoyancy allows for easy mechanical retrieval.
<b>Air Purification (HVAC)</b>	Functional media for HVAC filters, air purifiers, and home ventilation systems.	Drastically higher VOC removal capacity; extends filter lifespan and air quality.
<b>Automotive Industry</b>	Automotive cabin filters for Formaldehyde and TVOC removal.	Ensures a "New Car" odor-free environment; space-saving due to ultra-high efficiency.
<b>Water Treatment</b>	Selective removal of organic pollutants from industrial wastewater.	High hydrophobicity allows selective capture of oils/solvents without water interference.

## Section 7: Global Logistics & Transportation

Our aerogel powder and granules are classified as **Non-Hazardous** and **Non-Restricted** for international shipping, ensuring a smooth customs clearance process and cost-effective global logistics.

**Ocean Freight (IMDG Code):** Not restricted. Classified as non-hazardous cargo (Verified by Shanghai Institute of Chemical Industry Testing).

**Air Freight (IATA DGR):** Not restricted. Fully compliant with IATA dangerous goods regulations for worldwide air transport.

**HS Code Reference:** \* **7018.90.9000** (Electronic Grade / High-purity Silica Based)

**2811.22.9000** (Silica Aerogel CAS: 7631-86-9)

**Standard Packaging:** 2.0 kg to 5.0 kg per carton/bucket. (Vacuum or anti-static packaging is available specifically for Electronic Grades to prevent contamination).

**Storage Conditions:** Store in a cool, dry, and well-ventilated area. Keep containers strictly sealed to prevent ambient moisture absorption.

## Section 8: Technical Support & Engineering Contact

Hebei Woqin provides full-lifecycle support for our global partners. For customized thermodynamic simulations, particle size customization (D90 tuning), or specialized K-REACH compliance inquiries, please contact our engineering department directly.

HEBEI WOQIN TRADING CO., LTD.

URL: [www.cn-aerogel.com](http://www.cn-aerogel.com)

Email: [an@cn-aerogel.com](mailto:an@cn-aerogel.com)



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