

product specification

Water-based sound-insulating aerogel coating

AF-BGY



Product description

Due to its low-speed acoustic properties and variable acoustic impedance range ($10^3\text{--}10^7\text{ kg/m}\cdot\text{s}$), aerogel serves as an ideal acoustic coupling material for ultrasonic detectors.

Aerogel sound insulation coating offers excellent sound insulation performance, stable acoustic characteristics, is environmentally friendly, lightweight, aesthetically pleasing, fire-resistant, provides thermal insulation, and is waterproof. When applied to appropriate surfaces – such as sound insulation structures, acoustic barriers, noise-reduction rooms, or sound-insulating enclosures – it can be directly applied over the noise source without requiring any additional protective panels or other sound-absorbing fillers.



Water-based sound-insulating aerogel coating

(AF-BGY)

Function: Lightweight sound insulation and damping

Use: Construction, electrical appliances, ventilation systems, vehicles

Specifications: 10 kg/20 L

Dosage: 0.6 (kg/mm/m²)

Product Parameter

Traditional insulation and energy-saving materials require significant labor and auxiliary materials during installation. In contrast, the straightforward application process of aerogel coatings offers an excellent cost-performance ratio across the 40–120°C temperature range.

project	parameter
pigment	White (Adjustable)
120 mm standard floor slab weighted standardized impact sound pressure level	3mm: ≤75dB
	5mm: ≤65dB
density	0.56±0.02g/cm3
cohesional strength	≥0.5MPa

Waterproofing performance	After 96 hours of water immersion, no abnormalities were observed.
fire-protection rating	B2
VOC content	Qualified (≤80 g/L)
Is it wear-resistant?	flexibility
Long-term operating temperature	-40°C~150°C

Feature Description

Whether in stationary large-scale structures, mobile spaces, or vibrating machinery and equipment, appropriate sound insulation and noise reduction measures are always required. Aerogel sound insulation coatings, owing to their unique application characteristics and performance, can be widely utilized across a broad range of industries.

function	explain
Exhibits excellent acoustic performance	Aerogel coatings are typical lightweight sound-insulating materials; generally, the higher the density, the better the sound insulation performance. However, aerogel coatings can... Achieve sound insulation with lightweight construction: a 24 cm thick solid brick wall with a double-plastering structure provides 54 dB of sound insulation, whereas a 2 mm aerogel sound-insulating coating offers superior performance. Provides 16 dB sound insulation.
Environmentally friendly and pollution-free	This product, made from silica material and high-performance resin emulsion, is currently the only innovative, eco-friendly, and high-tech solution that does not cause secondary environmental pollution.
Low density	Durable against weathering, corrosion, and aging; capable of withstanding wind, rain, and sun exposure; classified as a Class B1 self-extinguishing product.
Easy construction and installation	Apply this coating to any surface to create sound-absorbing structures of any shape; it can also be used to construct various types of sound insulation and sound-absorbing assemblies.

Usage and Instructions

Aerogel coatings represent a novel type of sound insulation material. Thanks to their exceptional sound insulation properties, aerogel also offers a range of comprehensive benefits, including thermal insulation, energy efficiency, mold resistance, and moisture resistance.

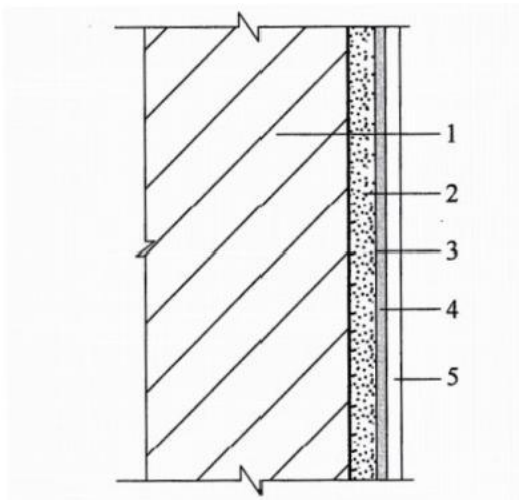
Building Structural Design

All existing coating application techniques are suitable for applying aerogel coatings; no additional training or customization of specialized application equipment is required.

project	Reference thickness (mm)
Waterproof putty	~
Alkali-resistant priming coat	<0.5
Aerogel insulation intermediate coat	2
Topcoat/Finishing Coat	<0.5
performance specification	Sound insulation: 15 dB noise reduction; Thermal insulation: reduces air conditioning energy consumption; Prevention of condensation: Reduces conditions conducive to wall condensation during the humid season.
Appearance Description	Adjustable color

Structural design

When an aerogel coating system is used for building sound insulation, the basic structure shall consist of a wall substrate. Consists of a putty layer, a base coat, an intermediate coat, and a topcoat.



Basic construction for interior wall insulation using a thick aerogel thermal insulation coating system
1 – Wall substrate; 2 – Putty layer; 3 – Base coat; 4 – Intermediate coat; 5 – Topcoat

Feature Description

Aerogel sound insulation coating is used in vehicles and other applications, offering excellent adhesion strength and sound insulation performance. It effectively addresses sound insulation requirements within specified spaces.

Equipment Structural Design – Structural Configuration

Equipment

Structural Design – Structural Configuration

All existing coating application techniques are suitable for applying aerogel coatings; no additional training or customization of specialized application equipment is required.

When an aerogel coating system is employed for sound insulation, the basic structure shall consist of a base layer, a primer layer, a middle layer, and a topcoat layer.

project	Reference thickness (mm)
Primary level	~
primary coat	<0.5
Aerogel insulation intermediate coat	2
Topcoat	<0.5
performance specification	Sound insulation: 15 dB noise reduction; Thermal insulation: reduces temperature; Insulation: reduces heat loss;
Appearance Description	Surface color adjustment

1

-2

3

4

Basic construction for sound insulation using an aerogel coating system

1 – Metal layer; 2 – Base coat; 3 – Intermediate coat; 4 – Finish coat

Application scenarios

domestic appliance

Reduce electrical equipment vibration and noise.



vehicle

Lightweight design with superior sound insulation, effectively reducing weight.



public works

Sound insulation for public buildings, classrooms, etc.



Application case

It offers significant acoustic insulation advantages. The product has been certified by the Jixing Resonance Laboratory for use in sound insulation between automotive engines and the crew compartment, as well as for yacht cabin insulation by Sunbird Yacht Co., Ltd.



Preliminary work for construction

Function: Spraying	Scratch coating/Roll coating
The substrate surface to be coated must be clean, free of debris, completely grease-free, and dry and flat. If necessary, clean the surface, remove any grease, and fill any gaps. Base surface requirements Gray or similar treatment. The building substrate and walls must be completely dry; the moisture content on the wall surface (or putty surface) must be less than 14%, and the pH value must be less than 10.	
Spraying machine, roller, laminated paper, mixer, protective mask, protective equipment Construction tools Workwear, safety rope, safety helmet, protective footwear, safety goggles, protective film	Putty knife, scraper, roller, sticker paper, mixer, protective mask, protective clothing, safety rope, safety helmet, protective footwear, goggles, protective film
Repainting interval: Apply the second coat only after the first coat has dried completely; typically, a 24-hour waiting period is recommended.	
Construction Conditions: 1. The construction temperature shall be no lower than 5°C and no higher than 80°C (equipment may be used for construction under varying temperatures); 2. When the ambient humidity exceeds 85%, the recoating time shall be extended.	
Construction Method: Before application, mix the material using an electric mixer for at least 1 minute; this allows for construction at ambient temperature.	
Tool cleaning: Rinse promptly with tap water.	

Operation sequence

NO.	New concrete surface	Old concrete surface
1	Base surface preparation: Clean the wall surface, removing any loose material, hollow spots, dust, dirt, or other contaminants. If there are cracks in the wall surface, cover them with kraft paper or mesh fabric. For wall surfaces that are originally concrete, apply a white alkali-resistant primer first.	Base surface preparation: All interior walls must be removed and cleaned to eliminate any loose or hollow areas. Remove any debris such as dust or dirt. If the wall surface has cracks, you may use kraft paper or mesh fabric to cover the gaps.
2	Wall repair: Repair hollow areas and uneven wall surfaces	
3	Apply putty: Depending on the flatness of the wall surface, allow each layer of putty to dry before applying the next layer. Finally, sand the surface smooth with sandpaper and clean the wall.	
4	Apply white wall primer: After completing the surface preparation, apply a white wall primer to enhance the adhesion of the substrate and reduce the occurrence of wall hollowing.	
5	Spraying/Scrapping/Brushing of Interior Wall Aerogel Insulation Coating	
6	Roll/spraying/ surface coating (colored or colorless surface coating may be used; this step may be omitted if required)	
7	Final inspection: After completing the above steps, conduct a final check to ensure that the wall coating is applied evenly, with no missed areas or color discrepancies.	

Serial No. – Spraying – Brush-Coating/Roller-Coating

- Unsealing and mixing: First, check whether the coating raw materials exhibit any visible layering; if layering is present, mix the materials thoroughly using the mixing method – avoid high-speed dispersion. Mix. The duration should be at least 1 minute.
- The coating can be applied by spraying, with the number of application coats ranging from 1 to 5. The specific application method and coating thickness shall be determined based on the construction environment, the area to be coated, and the required performance requirements. Determines based on requirements and customer needs.
- Before applying the coating, thoroughly clean the equipment surface of any rust, oil contamination, dust, or other contaminants. For areas already corroded, perform a rust conversion and anti-corrosion treatment before applying the coating; for areas prone to corrosion, apply anti-corrosion treatment before application. The coating application process must be carried out in an environment with a temperature

Preliminary work for construction

above 5°C.

- 4 If the equipment surface is excessively smooth, if special liquids or gases are being transferred within the equipment, or if other special circumstances arise, a plan should be developed in advance to apply additional surface coatings to the equipment.

- 5 Apply an aerogel energy-saving, heat-reflective coating via spraying or brushing to the treated surface; the coating thickness can be adjusted according to the desired heat-reflective effect or the customer's specifications. The thickness of the first application should be

Within 1 mm; once the first layer has dried, gradually increase the number of spray applications. Starting from the second layer, the thickness of each application may be appropriately increased; it is recommended to keep the thickness per application within 2 mm.

The construction of the subsequent layer shall ensure a level surface. The surface must be allowed to dry naturally for 48 hours before being put into use.