



product specification

Energy-saving, heat-resistant aerogel coating

AFGY-B-H20



product configuration

Due to the high thermal inertia of aerogel, heat conduction occurs at an extremely slow rate. After applying an aerogel coating, even when the surface temperature reaches 200°C, the surface can still be touched directly with the hand.

Objects at high temperatures transfer heat to the hand rapidly within a short time, causing the hand's temperature to rise instantly and making it feel hot. This is why, in summer, touching iron feels hotter than touching wood.



Energy-saving, heat-resistant aerogel coating

(AFGY-B-H200)

Features: Energy efficiency, heat protection

Use: For equipment operating at temperatures below 180°C; energy-saving insulation for pipelines; protection against thermal injury.

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 temperature range of 40–120°C.

project	parameter
pigment	White (Adjustable)
heat conductivity	≤0.038W/m²K
density	0.57±0.02g/cm³
cohesional strength	≥4A
Waterproofing performance	After 96 hours of water immersion, no abnormalities were observed.

fire-protection rating	B2
VOC content	Qualified
Is it wear-resistant?	flexibility
Long-term operating temperature	<180°C

Coating System Design

Within the temperature range of -40°C to 180°C, the straightforward application method and the absence of thermal bridging in the aerogel coating process enable seamless implementation, regardless of the complexity of the pipeline system or the condition of the equipment.

scope	thickness
Temperature range: 20–120 °C	It can effectively reduce the diurnal temperature variation, which is particularly noticeable in regions with extreme heat or extreme cold.
120–180°C temperature range	Depending on the operating conditions and intended use, apply a coating with a thickness of 4–10 mm to the exterior of the pipeline.

Base surface preparation

Stainless steel welds require rust prevention treatment; the surface of the energy-saving, heat-resistant aerogel coating shall be topped with a wear-resistant and waterproof surface coating as specified.

Substrate Type	Base surface preparation
Stainless steel, aluminum	Substrate + Energy-Saving, Heat-Resistant Aerogel Coating
Carbon steel, copper	Substrate + Rust-Inhibiting Primer + Energy-Saving, Heat-Resistant Aerogel Coating
Rusted iron substrate	Substrate + Rust Prevention Primer + Anti-Rust Primer + Energy-Saving, Heat-Resistant Aerogel Coating

Usage and Instructions

Aerogel coatings represent a novel type of thermal insulation material designed to provide thermal insulation through their low thermal conductivity and high thermal resistance. Due to their exceptional insulation performance, aerogel coatings perfectly meet the technical requirements for insulation coatings – they offer both superior thermal insulation performance and a thin coating film.

architectural design

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

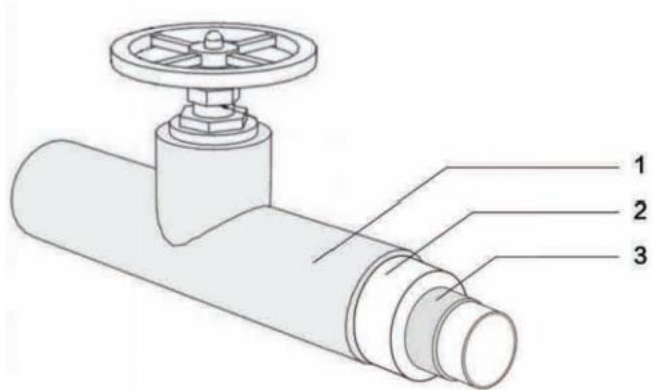
project	Reference thickness (mm)
Grassroots	~
primary coat	<0.5
Aerogel insulation intermediate coat	2~8
Surface finish	<0.5

performance specification	Burn prevention: Reduce the number of individuals injured by equipment-related burns; Energy efficiency: Reduce energy consumption; Insulation: Reduces heat loss;
Appearance Description	Surface color adjustment

Coating System Design

Structural design

When an aerogel thermal insulation coating system is employed for industrial insulation, the basic structure shall consist of a substrate, a primer coat, an intermediate coat, and a topcoat.



Basic construction for industrial thermal insulation applications using a thick aerogel insulation coating system:

- 1 - Base coat;**
- 2 - Intermediate coat;**
- 3 - Topcoat**

Product Application

Aerogel industrial thermal insulation coatings can effectively reduce heat loss in industrial equipment, pipelines, and storage tanks, thereby improving energy efficiency and lowering operating costs. Additionally, these coatings possess excellent corrosion resistance, waterproofing, and fire resistance properties, enabling them to remain effective over the long term even under high-temperature, high-humidity, or corrosive environmental conditions, thus extending the service life of the equipment.

Oil and Gas Industry

Energy efficiency, protection, and insulation for equipment and pipelines.



Chemical and pharmaceutical industries

Insulation protection for reaction vessels, distillation columns, pipelines, and storage tanks.



Power and Energy Sector

Adiabatic and thermal insulation for boilers, steam turbines, and heat exchange systems.



Marine and Ocean Engineering

Thermal insulation for ship hulls, pipelines, storage tanks and other marine engineering equipment.



Metallurgical and steel industries

High-temperature furnaces, pipelines and other equipment.



Food and beverage industry

Insulation for steamers, fermentation tanks, and refrigeration facilities.



application case

Aerogel industrial thermal insulation coatings, owing to their outstanding thermal insulation performance, high-temperature resistance, fire and corrosion resistance, and exceptional durability, are suitable for a wide range of industrial applications—including petroleum and natural gas, chemical processing, power generation, marine and offshore engineering, metallurgy, and the food and beverage industries.

Product Application



preliminary work for construction

Function: Spraying		Scratch coating /Roll coating	
The substrate surface to be coated must be clean, free of debris, completely free of grease, and dry and flat. If necessary, the surface should be cleaned, degreased, and prepared according to the specified substrate requirements. Gray-scale processing			
Spraying machine, roller, masking paper, mixer, protective mask, protective equipment ,Construction tools,Workwear, safety rope, safety helmet, protective footwear, safety goggles, protective film		Putty knife, scraper, roller, patterned 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.		Tool cleaning: Rinse promptly with tap water.	

operation process

No.	Spraying	Scratch coating/Roller coating
1	Unsealing and stirring: Please first check whether the coating raw materials exhibit any visible layering; if layering is present, stir the materials thoroughly using the stirring method – do not subject them to high-speed dispersion. Stir.The duration should be at least 1 minute.	
2	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 quality requirements.Determines based on requirements and customer needs.	
3	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 proceeding with the coating application. Easy Corrosion ,The corroded areas shall be subjected to rust prevention treatment before construction begins. The coating application process shall be carried out in an environment with a temperature above 5°C.	
4	.If the equipment surface is excessively smooth, if special liquids or gases are being transferred inside the equipment, or if other special circumstances exist, a plan should be developed in advance to add other surface coatings	
5	Apply an aerogel energy-saving, heat-protective coating via spraying or brushing to the treated surface; the coating thickness can be adjusted according to the desired heat protection effect or the customer's specifications. The thickness of the first coat should beApply 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, but it is recommended to keep the thickness below 2 mm per application. The final layer should be applied to ensure a smooth surface. Allow the coating to dry naturally for 48 hours before putting it into use.	