

## Product technical specification

Revision Date:

TDS Number:

Product name: Polyurethane Block Composite Material for Cold Storage

version: V 3.1

### Product profile

The polyurethane block composite material for cold storage uses an environmentally friendly blowing agent with ultra-low thermal conductivity. When combined with WANNATE® 2208, it produces foam products featuring high compressive strength, low thermal conductivity, near-zero water absorption, and exceptional chemical stability.

### Intended Use

This composite material system can be widely applied in areas such as steel structure warehouse column footings and wall insulation, effectively preventing cold leakage in refrigeration facilities. It maintains optimal performance throughout the designed service life of cold storage installations.

Prior to using the polyurethane block composite material for cold storage, preliminary testing must be conducted to verify the reliability of the material system in producing the specific end product.

### Physical & Chemical Properties

Item	Specifications / Technical Indicators
Viscosity at 25 °C, mPa•s	400~1000
Density, g/cm <sup>3</sup>	1.10±0.10
Color	Light brown or brown

## Free-Rise Foaming Parameters

Item	Specifications / Technical Indicators
Cream Time, s	30~50
Gel Time, s	120~180
Tack-Free Time, s	240~300
Free-Rise Density, Kg/m <sup>3</sup>	200~400

## Physical Properties

### Cold Storage Wall Panels/Blocks

Item	Specifications / Technical Indicators
Density, kg/m <sup>3</sup>	≥400
Thermal Conductivity (20°C), W/(m k)	≤0.059
Compressive Properties (形变10%), MPa	≥19
Dimensional Stability (-30°C, 48h) (%)	≤1
Tensile Strength/MPa	≥4.5
Thermal Expansion Coefficient/K <sup>-1</sup>	≤59*10 <sup>-6</sup>

### Cold-storage column base pad block

Item	Specifications / Technical Indicators
Density, kg/m <sup>3</sup>	≥500
Thermal Conductivity (20°C), W/(m k)	≤0.075
Compressive Properties (形变10%), MPa	≥30
Dimensional Stability (70°C, 48h) (%)	≤1
Tensile Strength/MPa	≥5
Thermal Expansion Coefficient/K <sup>-1</sup>	≤58.7*10 <sup>-6</sup>

(1) The polyurethane block composite material for cold storage requires a foaming material temperature of 25 °C with a mass ratio of (1-1.4):1. Manual mixing shall be performed using electric stirring at 2500 rpm.

(2) The above data are laboratory test results from Wanhua Energy-Saving Technology Group Co., Ltd. On-site performance may vary depending on equipment and conditions.

(3) The values provided in this document are typical test data, and actual results may slightly differ due to environmental factors. For our company's products, the listed data shall not be legally binding in any way.

## Usage Precautions

When storing polyurethane block composite materials for cold storage, avoid humid environments and keep away from water sources and heat sources. Direct sunlight exposure should be minimized, and the storage temperature must be maintained below 50 °C. Temperatures exceeding 60 °C may cause product degradation. Short-term temperature fluctuations have minimal impact on product quality; however, it should be noted that viscosity will significantly increase at lower temperatures, which may complicate application.

The usage area must be a no-flame zone with adequate ventilation, strictly prohibiting open flames and smoking. If hot work is required nearby, a formal hot work permit system must be implemented with appropriate safety measures and dedicated supervision.

**The Buyer must conduct pre-application testing under conditions identical to production environments to verify the reliability of the composite material system for manufacturing the specific end product. Formal production use shall constitute the Buyer's acceptance of the product's qualified performance. All liabilities arising from non-compliance with these requirements shall be borne solely by the Buyer.**

## Packaging specifications

200L Green Steel Drum.

## Storage & Handling Precautions

The composite material must be stored in airtight containers to prevent moisture absorption. During storage and transportation, containers must remain dry and tightly sealed.

Store at room temperature (5–35 °C) in a cool, ventilated place, away from direct

sunlight. Avoid prolonged storage above 40 °C, as excessive heat may cause blowing agent evaporation and compromise product performance.

## **Shelf Life**

The polyurethane block composite material for cold storage has a shelf life of 6 months when stored under proper conditions. After 6 months, the material may remain usable if it passes quality inspection.

## **Safety Precautions**

Direct contact with the polyurethane block composite material for cold storage may cause moderate eye irritation, mild skin irritation, and potentially lead to skin allergies. Repeated inhalation of high-concentration vapors may result in respiratory allergies. Immediate medical attention is required, with anti-inflammatory and anti-allergic symptomatic treatment measures to be administered.

When handling the material, exercise caution to prevent direct skin contact and eye exposure. Necessary protective equipment must be worn, including gloves, safety goggles, and work clothing.

In case of contact with skin or eyes, immediately rinse with clean water for at least 15 minutes. Wash affected skin with soap and water, and seek medical attention if necessary. If ingested, seek immediate medical treatment for symptomatic care.

## **Fire and Explosion Hazards**

This product is not classified as a flammable liquid, explosive, oxidizer, corrosive, toxic substance, or radioactive hazard during storage and transportation, and does not qualify as dangerous goods. For fire extinguishing, carbon dioxide, foam, or dry chemical powder fire extinguishers may be used. If no other extinguishing agents are available, large amounts of water mist can be sprayed.

Once the fire is extinguished, spilled material should be cleaned up (refer to Spill Handling Procedure). Firefighting procedure: Standard protection measures apply.

### **Leakage/Spill Handling Procedure**

For minor leaks/spills ( $\leq 1\text{L}$ ), flush thoroughly with water. In case of major spills ( $> 1\text{L}$ ), contain and recover the material, then decontaminate the affected area by scrubbing with water or detergent solution. Disposal of waste composite materials must comply with local environmental regulations.

**For more information, please refer to the safety technical manual for our products or contact our customer service center.**

---

The indicators and data given in this data are based on our existing technical knowledge level and practical experience and are for reference only. The specific guarantee index shall be subject to the provisions of the quality guarantee certificate or the supply contract. Users have the responsibility for testing the products purchased to verify whether they are suitable for the proposed process and use and to achieve the intended purpose. Further application and processing of our products are beyond our control, so our liability for the products provided is limited to the parts delivered by us and used by you. We will not bear the indirect losses caused by the production process of using our company's products as raw materials. Our company technical support and customer service center is willing to provide you with product consulting and application technology services, welcome to contact.

Address: Wanhua Energy-Saving Technology (Yantai) Co., Ltd.

No. 56 Taiyuan Road, Yantai City, Shandong Province, China

Email: mouwen@126.com

---