Product Technical Manual

Revision Date：2025-03-01 TDS Number：WHF 401

Product Name：Pouring-type polyurethane rigid foam insulation pipe composite material (water-blown) Version：V 3.1

Product Introduction

Pouring-type polyurethane rigid foam insulation pipe composite material (water-blown) uses water as the sole blowing agent without other auxiliary foaming agents. When combined with WANNATE®2208, the resulting foam exhibits fine cell structure, strong adhesion, uniform density distribution, along with excellent flowability and mold-filling properties.

The composite material can be customized to adjust reaction time and flame retardancy according to customer process requirements, while ensuring compliance with Chinese National Standard GB/T 29047-2012.

Product Usage

The composite material is suitable for manufacturing insulated pipes of various diameters and lengths, applicable for conveying diverse fluids under different temperature conditions. Different grades of the material are compatible with both one-step and two-step production processes, with adjustable reaction time and free-foaming density to meet specific customer process requirements.

Physical and Chemical Properties

Item	Specification
Viscosity 25°C, mPa•s	100-800
Density，g/cm^3	1.10±0.10
Color	Yellow or Brown

Free Foaming Parameters

Item	Specification
Cream Time，s	35-40
Gel Time，s	160-190
Tack-Free Time，s	180-220
Free-Rise Density，Kg/m^3	33-37

(1) Foaming requirements: Material temperature: 22 ℃, Weight ratio: 1:4~1.6, Mixing method: Manual blending with electric mixer at 2500 r/min.

(2) The technical parameters herein are derived from laboratory testing and may deviate under actual application conditions. These values are provided for reference only and do not constitute legally binding obligations.

Usage Precautions

Before the application, verify and calibrate the temperature of black/white components, delivery ratio of pouring equipment, and mixing pressure.

Prior to production, ensure the core pipe and pipe casing are thoroughly dry and clean. To achieve optimal bonding performance, preheat the core pipe to at least 35 ℃.

During pouring operations, insufficient filling volume or excessive foam leakage outside the pipe casing may lead to product shrinkage; increase the filling quantity or ensure proper sealing of the pipe casing. For multi-stage pouring processes, strictly control the pouring length for each operation.

The production site shall be designated as non-fire area, maintained well-ventilated, and kept away from ignition sources. Smoking is strictly prohibited. When hot-work operations are conducted nearby, the hot-work approval system must be strictly implemented, with corresponding safety measures and specialized personnel supervision in place.

Prior to the formal production, the buyer must conduct a trial test in an environment consistent with the actual production conditions to verify the reliability of the composite material in the specific application. Upon commencement of formal production, it shall be deemed that the buyer has confirmed the product's performance inspection as qualified. If the above procedures are not followed, all responsibilities shall be borne by the buyer.

Packing Details

Green Iron Drum, 200kg/Drum

Storage (Usage) Precautions

The composite material should be stored in closed containers to avoid absorbing moisture. Therefore, during storage and transportation, the containers must remain dry and tightly sealed.

The composite material should be sealed and stored at room temperature (5 ℃ to 35 ℃), in well-ventilated and shaded area. Avoid direct sunlight or long-term storage above

40℃, which may accelerate the volatilization of blowing agents, thereby reducing foam performance

Expiration Date

Under suitable storage conditions, the storage period of the composite material is 6 months. After more than 6 months, it can continue to be used upon passing qualification tests.

Safety Precautions

Direct contact with the composite material may cause moderate eye irritation and mild skin irritation, potentially leading to skin allergies. Repeated inhalation of high-concentration vapors can induce respiratory allergies. Immediate medical attention should be sought, and anti-inflammatory and anti-allergic symptomatic treatment measures should be administered.

During operation, exercise caution to prevent direct contact with skin or splashing into eyes. Wear necessary protective equipment (gloves, protective goggles, work clothes, etc.).

In case of skin or eye contact, rinse immediately with clean water for at least 15 minutes. Wash the skin with soapy water and seek medical attention if necessary. If accidentally ingested, seek immediate medical treatment for symptomatic management.

Fire and Explosion Hazards

This product is not classified as flammable liquids, explosives, oxidizers, corrosives, toxic substances, or radioactive hazardous materials during storage and transportation. It is not categorized as a hazardous product.

Carbon dioxide, foam, or chemical dry-powder fire extinguishers can be used. If no other fire-extinguishing agents are available, a large amount of water mist can be sprayed. Once the fire is extinguished, the spilled materials must be thoroughly cleaned (refer to the "Spill and Leakage Handling" section).

Fire-Fighting Procedure: Standard protective measures.

Spill and Leakage Handling

Small amounts of leaked or spilled materials can be rinsed away with water. In case of large-scale leakage, contain and recover the materials, and wash the contaminated ground with water or detergent. The disposal of waste composite materials must comply with the local government's environmental protection regulations.

For more information, please refer to the Safety Data Sheet (SDS) of our products or contact our Customer Service Center.

The indicators and data provided in this document are based on our current level of technical knowledge and practical experience, and are for reference only. Specific guaranteed indicators are subject to the quality assurance certificate or supply contract. The user is responsible for testing the products purchased from our company to verify their suitability for their intended processes and applications, and to achieve the desired objectives. Further application and processing of our products are beyond our control. Therefore, our liability for the products provided is limited to the portion delivered by us and used by you. We do not assume responsibility for indirect losses incurred during the production process using our products as raw materials. Our technical support and customer service center are available to provide consultation and technical services related to our products. We welcome your inquiries and communication via mail or phone.

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