Product Technical Manual

Revision Date：2025-03-10 TDS Number：

Product Name：High-Temperature Resistant Sealing Gel (Fire Prevention and Extinguishing) Type 2 Version： V 3.1

Product Introduction

High-Temperature Resistant Sealing Gel (Fire Prevention and Extinguishing) Type 2 belongs to coal mine filling and fire-extinguishing materials. It consists of dual-component formulations (Component A and B), which are mixed at the volume ratio of 1:1 for foam spraying. The reaction process is non-exothermic, and the resulting foam body exhibits high water content and excellent flame retardancy. This material is applied in coal mine fields for filling/sealing, fire prevention, and spontaneous combustion control.

Product Usage

Sealing Gel Type 2 can be applied to cover loose coal surfaces, effectively blocking oxygen contact and preventing coal oxidation, thereby suppressing spontaneous combustion. Specific application scenarios include:

1、Filling and sealing of air leakage channels in upper/lower corner goaf areas

2、Filling and sealing of air leakage channels in shallow goaf areas between/behind working face supports

3、Filling and sealing of abandoned/closed roadways

4、Prevention and control of coal spontaneous combustion in localized areas (e.g., roadway and support roofs)

5、Control of localized spontaneous combustion fires in goafs and behind supports

6、Sealing toxic and harmful gases in underground environments

Product Features

Components A and B are mixed at a 1:1 volume ratio and sprayed through a specialized foaming device, initially forming the milky-white foamed material. The foam solidifies into rigid foam structure within a defined curing period.

1 、Exhibits no heat release during the curing process, maintaining ambient temperature throughout the reaction. Demonstrates exceptional thermal stability, withstanding temperatures exceeding 1000℃ without combustion or structural collapse under high-temperature fire conditions

2 、After two components mixed,initially forms the emulsified foam with controlled fluidity, enabling effective penetration and filling within fractured coal-rock masses.Upon solidification, the foam completely fills surrounding voids and coal/rock fissures, achieving optimal sealing and fire suppression

3 、 Exhibits high foam expansion ratio, enabling free stacking angles up to 50°. This characteristic facilitates large-space filling in open environments, effectively addressing the challenge of insufficient vertical accumulation in in open spaces, thereby reducing material waste

4 、Exhibits excellent anti-static properties, attributed to its moisture-rich foam structure, which provides inherent electrostatic discharge resistance

Physical and Chemical Properties

Item	Specification	
	Component A	Component B
Appearance	Pale yellow liquid or milky white liquid	Colorless or pale yellow transparent
Flash Point，℃	No flash point	No flash point

Reaction Parameters

Item	Specification
Maximum Reaction Temperature (℃)	Room temperature, with no temperature change before and after the process
Expansion Ratio， times	≥15
Curing Time， s	≤240

Physical Properties

Item	Specification
Flame Retardancy	Non-combustible, maintains structural integrity at 1000° C without ignition or deformation
Antistatic Performance	Complies with MT/T 113-1995

Note: 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

Select appropriate dual-liquid mixing pump and foaming equipment. Prior to application, calibrate the A/B mixing ratio and mixing pressure of the grouting equipment.

1 、If stratification is observed in Component A (blue barrel), shake thoroughly before use. This is normal phenomenon and does not affect performance

2 、During application, prevent direct contact between Component B and metal equipment (e.g., hydraulic supports). If accidental contact occurs, clean immediately with water.

3、Prior to formal construction, conduct field tests under conditions identical to the actual working environment to verify the reliability of the mixed material system

Storage (Usage) Precautions

Sealing Gel Type 2 should be stored at room temperature (10～25℃), in well-ventilated and shaded area with airtight sealing. Avoid direct sunlight or long-term storage above 40℃. Keep separate from oxidizers and acidic substances, which may reduce foam performance.

Expiration Date

Under suitable storage conditions, the storage period of Sealing Gel Type 2 is 3 months. After exceeding 3 months, the material can continue to be used only after passing the inspections.

Safety Precautions

Direct contact with the material may cause moderate eye irritation and mild skin irritation, potentially leading to skin allergies. 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.

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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