Product Technical Manual

Revision Date：2025-03-10 TDS Number：

Product Name：High-Temperature Resistant Sealing Gel (Fire Prevention and Extinguishing) Type 1 Version： V 3.1

Product Introduction

High-Temperature Resistant Sealing Gel (Fire Prevention and Extinguishing) Type 1 is two-component (A and B) gel foam material specifically designed for coal mine fire prevention and suppression. After mixing the two components, the material is foamed by the specialized foaming device and then injected (or sprayed) onto coal walls. This process forms a sealing layer that isolates the coal from air, while its unique structural composition and high-efficiency fire-suppressing agents ensure thorough prevention and control of coal spontaneous combustion

Product Usage

Sealing Gel Type 1 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. Sealed or decommissioned roadways and goaf areas;

2. Coal field fires, coal pile spontaneous combustion, and underground mine fires;

3. Spontaneous combustion zones in coal pillars adjacent to working faces;

4. Spontaneous combustion-prone coal pillars along preparation roadways in mining districts;

5. Goafs and high cavities (to prevent gas accumulation and coal ignition);

6. Preventive fire control in working face goaf areas

Product Features

Component A and Component B of Sealing Gel Type 1 are mixed and foamed using specialized equipment to form a high-expansion foam gel. This material exhibits the following key characteristics:

1. The gel foam exhibits excellent coverage and stacking properties, enabling it to build up vertically in fire prevention/extinguishment zones and achieve full-range coverage of high-, medium-, and low-level fire sources in goafs or coal field fire areas. This effectively avoids the water loss and collapse issues associated with traditional clay slurry grouting methods

2. The gel foam can retain water within its gel structure for extended periods, with 95% of the moisture in the gel layer providing long-term heat absorption and cooling, effectively preventing fire re-ignition. This mechanism avoids the rapid water loss issues common in conventional foams

3. The gel foam can adhere to and seal cracks in loose coal surfaces, effectively blocking air leakage channels while suppressing fires

4. The gel foam contains high concentration of fire-retardant agents and high-efficiency fire-suppressing molecules, which persistently inhibit coal oxidation and isolate oxygen from the coal mass, thereby achieving thorough prevention and control of coal spontaneous combustion

Physical and Chemical Properties

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

Reaction Parameters

Item	Specification
Maximum Reaction Temperature (℃)	Room temperature, no heat release

Expansion Ratio， times	≥20
Initial Setting Time， s	≤90
Final Setting Time， min	≥3

Physical Properties

Item	Specification
Flame Retardancy	Non-combustible
Antistatic Performance	Complies with MT/T 113-1995
Water Retention	≥90

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.
Before commencing formal construction, the buyer must conduct material reliability tests under conditions identical to the actual construction environment to verify the applicability of the gel foam materials.

Storage (Usage) Precaution

Sealing Gel Type 1 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 1 is 6 months. After exceeding 6 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.

联系地址：山东省烟台市太原路 56 号，万华节能科技（烟台）有限公司

电话：400-059-1116 传真：(86)-0535-6809777 邮编：264006