

Technical Data Sheet: Chemical Grade MnO₂ for Polysulfide Sealant Curing

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1. Product Description

Chemical Grade MnO₂ for Polysulfide Sealant Curing is a high-activity manganese dioxide material specifically engineered for the oxidative curing of polysulfide polymers. This specialized material facilitates the efficient cross-linking of thiol-terminated polysulfide resins, which are widely utilized in critical applications such as construction, aerospace, and insulating glass sealants. The product is characterized by its consistent curing performance and stable formulation behavior, ensuring reliable results in diverse sealant systems.

2. Key Features

- **High Oxidative Activity:** Enables efficient conversion of thiol (-SH) groups to disulfide bonds during sealant curing, leading to robust cross-linked elastomer networks.
- **Consistent Particle Size Distribution:** Ensures superior dispersion within sealant curing pastes, thereby enhancing formulation stability and uniformity.
- **Stable MnO₂ Purity:** Guarantees predictable curing rates and consistent cross-link density, which are crucial for optimal sealant performance.
- **Optimized Specific Surface Area:** Promotes effective catalytic oxidation and rapid polymer network formation, contributing to accelerated curing processes.
- **Reliable Performance:** Provides consistent and dependable performance in two-component polysulfide sealant systems.

3. Technical Specifications

| Parameter | Typical Value |
|-------------------------|----------------------------------|
| MnO ₂ Purity | 85–95% |
| Particle Size (D50) | 5–12 μm |
| Specific Surface Area | 40–80 m ² /g |
| Moisture Content | ≤2.0% |
| Bulk Density | 0.6–0.9 g/cm ³ |
| Crystal Phase | Predominantly γ-MnO ₂ |

4. Applications

- **Two-Component Polysulfide Sealants:** Acts as a primary oxidizing agent to create strong, cross-linked elastomers.
- **Insulating Glass Sealants:** Contributes to durable sealing solutions with stable mechanical properties, ensuring long-term integrity.
- **Aerospace Sealants:** Supports the formulation of high-performance sealants essential for demanding applications, such as aircraft fuel tank sealing systems.
- **Construction Expansion Joint Sealants:** Enhances chemical resistance and long-term elasticity, vital for infrastructure sealing materials.
- **Industrial Adhesives and Coatings:** Provides controlled oxidative curing for various polysulfide-based formulations, improving their performance and longevity.

5. Packaging & Supply

- **Standard Packaging:** Supplied in 25 kg fiber drums, each equipped with an inner PE liner to ensure product integrity and protection.
- **Export Packaging:** Designed for international shipping and palletized logistics, meeting global transportation standards.

- **Laboratory Samples:** Available upon request for comprehensive formulation testing and pilot production evaluation, facilitating product development and quality assurance.

6. Customization & Technical Support

BTLnewmaterial offers customized MnO₂ grades tailored to specific formulation requirements, including:

- **Particle Size Adjustment:** For optimized dispersion characteristics.
- **Purity and Activity Control:** To achieve desired curing speeds.
- **Bulk Industrial Supply:** For large-scale sealant production needs.
- **Technical Consultation:** Expert support for sealant formulation and process optimization.

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