

# WANSHEL®EM220

## Highly Penetrating

### Epoxy Grouting Material

## Product Description

WANSHEL®EM220 High-Penetration Epoxy Grout is a two-component, low-viscosity epoxy grouting material featuring exceptional permeability that can penetrate concrete cracks as narrow as 0.2mm and micro-fractured rock formations. Its characteristics include high strength, corrosion resistance, and strong adhesion to concrete and metal. Additionally, it offers low initial heat generation, non-toxic and environmentally friendly properties, and easy application, making it an ideal material for concrete reinforcement and strengthening.

## Product Characteristics

Two-component epoxy grout features low viscosity, strong permeability (penetrates 0.2mm micro-cracks), high strength, corrosion resistance, strong adhesion, non-toxicity, and ease of application, making it an ideal reinforcement material.

## Recommended Uses

Primarily used for repairing fine cracks, voids, and microfractures in concrete structures exceeding 0.2mm; addressing surface weathering, spalling, and internal looseness in concrete; reinforcing foundations, anchoring bolts, and filling hollow areas. It is particularly suitable for repairing and reinforcing concrete and rock structures in water conservancy, tunnels, bridges, nuclear power plants, and other applications demanding high permeability, strength, and durability.

## Technical Specifications

### Physical Parameters

Color	Dark brown
Specific Gravity	$1.04 \pm 0.03 \text{ kg/L}$
Initial Viscosity of Mixed Slurry	$<30 \text{ mPa} \cdot \text{s}, 25^\circ\text{C}$
Working Time	2h
Tensile Strength	$\geq 10 \text{ MPa}$
Compressive Strength	$\geq 40 \text{ MPa}$
Tensile Shear Strength	$\geq 5.0 \text{ MPa}$
Bond Strength on Dry Substrate	$\geq 3.0 \text{ MPa}$
Bond Strength on Wet Substrate	$\geq 2.0 \text{ MPa}$
Water Resistance Pressure	$\geq 1.0 \text{ MPa}$
Permeability Pressure Ratio	$\geq 300 \%$

The values provided herein represent typical test results; actual data may vary slightly depending on environmental conditions. For our company's products, the listed data is not legally binding.

## Application Guidance

### Application Conditions

Coating environment temperature range: 5 – 35°C

Coating environment humidity range: 30 – 85%

### Application Method

Specialized high-pressure airless grouting equipment.

### Mixing Ratio

Mass ratio: 6:1

Pot life: 2h/25 °C

### Ventilation conditions

Ensure the work area is well-ventilated and dust-free, but avoid strong winds that could carry in dust and affect the surface finish. For the safety of workers and to ensure the product performs correctly, all sections of the work area must have adequate ventilation.

## Application Steps

### Surface Preparation

Grind the area surrounding the crack to expose the solid concrete substrate. Remove calcium deposits and debris from the crack surface. Use compressed air to blow out dust from drill holes and within the crack.

### Drilling and Embedding Tubes

Drill holes across or at an angle to the crack (depth must penetrate the crack surface), spaced 20 – 30 cm apart (adjust slightly based on crack width). Embed grouting tubes. For low-pressure applications, epoxy mortar/putty may be used to bond grout boxes instead.

### Crack Sealing

Seal cracks with high-strength epoxy mortar/putty to prevent leakage; or chisel grooves and fill with high-strength cement mortar/903 polymer mortar, smoothing the surface. After drying, apply epoxy mortar to reinforce sealing.

### Seal Integrity Testing

Brush soapy water onto joint surfaces and inspect for leaks using compressed air. Re-seal any leaking areas until no leakage occurs.

## Grout Preparation

Weigh components at A:B = 6:1 (manufacturer's standard ratio) and mix for  $\geq 2$  minutes until uniform.

Prepare small batches frequently: Control single-batch volume based on injection rate to ensure low-viscosity flow.

## Pressure Grouting

Grout vertical joints from bottom to top; horizontal joints from one end to the other.

Gradually pressurize to design value (typically 0.2 – 0.5 MPa). Close valves after grout emerges from all ports, maintaining pressure until full saturation.

## Post-Treatment

After 24 – 48 hours of curing, cut off exposed grouting pipes.

Fill pipe holes with mortar. Apply 1 – 2 coats of epoxy mortar for surface protection.

## Packaging and Storage

### Packaging

Two-component system: Component A 20kg/drum, Component B 3.4kg/drum.

### Storage

Product storage must comply with national regulations. Store in a cool, well-ventilated area away from excessive heat. Containers must be securely sealed.

### Shelf Life

1 year

## Safety Measures

### Warning

May cause eye and skin irritation. Vapors may cause respiratory irritation in sensitive individuals. May cause skin sensitization. Avoid breathing vapors. Avoid contact with eyes and skin. Use eye, ear, and skin protection, and wear an appropriate respirator to avoid potential respiratory irritation. After use, thoroughly wash skin with water. If discomfort occurs, consult a physician. Wash clothing before reuse. If breathing has stopped, perform artificial respiration, preferably mouth-to-mouth, and seek medical attention. Burns: Exothermic reactions may cause product to become excessively hot. Handle mixtures with caution. Wear gloves. First Aid: If product contacts eyes, immediately flush with water for at least 15 minutes. Remove contaminated clothing and shoes. Wash exposed skin with soap.

Before and during use, observe all safety labels on the packaging. Consult the Safety Data Sheet and comply with relevant national or local government safety regulations.

## Statement

The information listed in this document is reliable. Each value provided is calculated as theoretical data based on the product formulation. Upon request, our company can disclose the internal standard measurement methods used to determine any of the above data. Since usage conditions are beyond the manufacturer's control, this information is provided without warranty. The product is intended for professional use only. For any inquiries, please contact our company.

Our Technical Support and Customer Service Center is available to provide consultation and application technical services regarding the product. We welcome your inquiries via mail or phone. National Customer Service Hotline: 400-059-1116 ext. 3.