

MORTAR RESIN PRODUCTS #3 and #3VO

FIBROUS MORTAR RESIN PRODUCT #306

An EPC Patching, Grouting and Overlay System

PRODUCT DESCRIPTION

Thermal-Chem's **Mortar Resin 3** is a two-component, medium modulus (5 to 9%), 100% solids, 100% reactive, non-shrink epoxy polymer. It has been formulated in two cures:

- Normal - for applications in warmer temperatures
- Rapid - for applications in cold temperatures or where fast cure is a requirement.

Blended with selected aggregates, **Mortar Resin 3** can be applied as a seeded build-up system, slurry with optional broadcast and as a trowel overlay or patch system. Each application requires different types and quantities of aggregate.

Mortar Resin 3 rapid cure may be applied on dry surfaces at temperatures between 0°F and 32°F, and on dry or moist surfaces above 33°F. Normal cure may be applied on dry or moist surfaces above 40°F. **Mortar Resin 3** meets VOC compliance and is USDA approved.

Mortar Resin 3VO is identical to **Mortar Resin 3** but in a light gel consistency. With the addition of properly blended aggregate, **3VO** is ideal for exterior and interior vertical and overhead patching applications.

Fibrous Mortar Resin 306 differs from **Mortar Resin 3** only by its specially designed glass filler resulting in higher flexural and tensile elongation properties. Typically **Fibrous Mortar Resin 306** is used whenever structures are subjected to vibrations or higher flexural movements caused by

vehicular traffic.

USES

Patching and Grouting: Thermal-Chem Mortar Resins, with the addition of selected aggregate, create an epoxy polymer concrete (EPC) developed to patch deteriorated interior or exterior concrete structures; repair damaged concrete and repair and replace machinery foundations; grout and secure anchor bolts and reinforcement steel into portland cement concrete.

The adhesive properties of this unique formulation provide both chemical and mechanical adhesion creating a monolithic design between the epoxy and concrete substrate. Structural repairs on concrete columns, beams, slabs, curbing, sidewalks, steps, driveways, pre-cast and pre-stressed concrete are easily accomplished during either normal or adverse conditions of application.

The epoxy mortar is ideally suited for applications such as grouting and securing rebar, dowels, handrails, anchor bolts, posts and other objects required to be set in, or bonded to concrete.

Mortar Resin 3 and **Fibrous Mortar Resin 306** may be mixed to a consistency that is pumpable, pourable and packable.

Overlays: **Mortar Resin 3** and **Fibrous Mortar Resin 306** epoxy polymer concrete overlays are used to overlay portland cement concrete surfaces on bridges decks, parking decks, ramps and slab-on-grade pavements.

And where the following qualities are required:

- Concrete with a chloride content at the top mat or rebar of less than 1.2 kg/m³ (2 lb/yd³)
- Rebar with less than 5 cm (2 in.) of concrete cover
- High permeability concrete
- Concrete that needs, or has been extensively patched
- Extensively cracked concrete
- Concrete with micro-cracks in cover over rebar
- Concrete with low bald tire skid numbers, typically less than 25

AGGREGATE SELECTION

Particle shape and gradation are important factors in developing a balanced mix that will properly wear. Larger aggregates may be added to the epoxy mixture for holes on horizontal surfaces. Sub-angular silica or quartz sand is recommended for epoxy sand mortars. Low void content in the sand mixture will require less epoxy resin. All aggregates must be clean and dry. Consult with Thermal-Chem Corporation for factory-approved formulations.

ADVANTAGES

- No patching minimum or maximum depth limitations
- Vertical and overhead patching will “hang” at 1½” – 2” per lift
- No offensive odor during installation
- Numerous aggregate mix designs increases product application versatility
- Available in two cures
- Non-shrink or expandable formulations
- Protects concrete from attack intrusion of chemicals, water and other harmful liquids
- Non-flammable
- Can be applied to moist surface (no free-standing water)

LIMITATIONS

- Do not thin with solvents
- Do not apply in presence of free-standing water
- If applied in high humidity environments, an amine blush may occur on cured surfaces. Blush does not compromise performance characteristics but must be removed with warm soap and water if a second lift or topcoat is to be applied.
- If the substrate temperature is below 60° F (21° C), precondition (i.e. preheat) the A and B components and aggregate to between 80° F to 85° F (27° C to 30° C). This will make the product easier to work with during placement and will increase the speed of cure but will also reduce working time.

Overlay Applications: Minimum 1/8 inch (3mm) in non-vehicular traffic environments; minimum ¼ inch (6mm) in vehicular traffic areas. Edges may

PHYSICAL PROPERTIES OF MORTARS MIXED WITH APPROVED SILICA SAND FORMULATION

| | Normal Cure | Rapid Cure | ASTM C881 Requirements |
|---|-----------------------------------|------------|------------------------|
| Potlife*,100g, hrs. | | | |
| 32°F (0°C) Class A | ---- | .6 | Complies |
| 50°F (10°C) Class B | 1.00 | .5 | Complies |
| 72°F (21°C) Class C | 0.75 | .4 | Complies |
| 90°F (32°C) Class C | 0.70 | .3 | Complies |
| Tack-Free Time, hrs. | | | |
| 32°F (0°C) | -- | 6.00 | N/R |
| 50°F (10°C) | 6.00 | 4.50 | N/R |
| 72°F (21°C) | 4.75 | 3.00 | N/R |
| 90°F (32°C) | 1.50 | 1.00 | N/R |
| Viscosity, poise (neat material) | 4-7 | 4-7 | Grade 20, max. |
| Bond Strength, psi (ASTM C882) | | | |
| +86° F (+30° C) | 4,800 | 4,800 | Passes Test |
| -55° F (-48° C) | -- | 5,000 | N/R |
| Thermal Compatibility (ASTM C884) | Passes | Passes | Passes Test |
| Shrinkage (ASTM C883) | Passes | Passes | Passes Test |
| Absorption, 24 hr. % (ASTM D570) | | | |
| Class A | .25 | .21 | 1.5max. |
| Class B | .28 | .27 | 1.5 max. |
| Class C | .31 | .32 | 1.5max. |
| Compressive Strength, psi (ASTM C579) 77°F (25°C) | | | |
| 1 day | 9,600 | 9,800 | N/R |
| 3 days | 11,300 | 11,800 | N/R |
| 7days | 14,000 | 14,200 | N/R |
| Compressive Strength,psi (ASTM C39 - AASHTO T22) 0°F (-18°C) | | | |
| 1 day | -- | 10,117 | N/R |
| 4 days | -- | 13,172 | N/R |
| Tensile Elongation, % (ASTM D638) 77°F (25°C) | | | |
| 7 days, mortar | 5-9 | 5-9 | N/R |
| (Product No. 306) | 9-10 | 8-12 | N/R |
| Flexural Strength, psi (ASTM D790) 77°F (25°C) | | | |
| 7 days (mortar) | 3,200 | 3,210 | N/R |
| (Product No.306) | (4,600) | (4,400) | N/R |
| Coefficient of Linear Thermal Expansion ASTM D696, -30° C to +30° C | 18.0 x 10 ⁻⁶ mm/mm/° C | | |
| Freeze Thaw Resistance (ASTM C666) | Rating 0 | Rating 0 | N/R |
| 300 cycles | No scaling | No scaling | N/R |
| Scale Resistance to De-Icing Chemicals (ASTM C672) | Rating 0 | Rating 0 | N/R |
| 50 cycles | No scaling | No scaling | N/R |

be feathered in some non-vehicular use and keyed into the PCC for vehicular use.

TYPICAL PHYSICAL PROPERTIES

ASTM 0881 Compliance

3 and 306

Type III
Grade 2
Class A, B and C

3VO

Type IV
Grade 2
Class A, B and C

COLORS AND TEXTURES

- 3 and 306 are available in 6 colors
- 3VO is available in 3 colors
- Various slip resistant textures achieved with different size and shapes of aggregate, method of application and topcoat material.

PRODUCT APPLICATION

- Slurry or trowel
- Refer to Thermal-Chem's Installation Guide for concrete patching and concrete overlays

PRODUCT AVAILABILITY

Products are manufactured and available through the Thermal-Chem Corporation, 2120 Roberts Drive, Broadview, IL 60155 U.S.A.

Tel: 800/635-3773 ▪ 847/288-9090

Fax: 847/288-9091

E-Mail: sales@thermalchem.com

Website: www.thermalchem.com

TECHNICAL/SPECIFICATION SERVICES

Additional Product Data, complete Technical Support and Product Specifications are all available through Thermal-Chem Corporation; or their local representatives.

Every reasonable precaution and effort has been taken in the manufacturer of all Thermal-Chem products to comply with the published product data. Actual product performance may vary slightly due to environmental influences and/or conditions.

PRODUCT HANDLING

Read the Material Safety Data Sheet thoroughly before use.

Warning: For professional use only. Avoid contact of uncured material with skin and eyes. Contact with skin may result in irritation. Wash skin with soap and water. If contact with eyes should occur, flush with water for 15 minutes and seek immediate medical attention.

LIMITED WARRANTY

Thermal-Chem Corporation warrants its product to be of good quality and will replace any product proved defective. Satisfactory results depend not only upon quality products but also upon many factors beyond our control. Therefore, except for such replacement, **THERMAL-CHEM CORP. MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, RESPECTING ITS PRODUCTS**, and Thermal-Chem Corporation shall have no other liability with respect thereto, including without limitation, liability for incidental or consequential damages. Any claim regarding product defect must be received in writing within one hundred and eighty (180) days from the date of shipment. No claim will be considered without such written notice or after the specified time interval. The user shall determine the suitability of the products for the intended use and assume all risks and liability in connection therewith.