



RESFOAM HB 45
Flexible, Hydrophobic Polyurethane Grout

SECTION 07 10 00
DAMPPROOFING AND WATERPROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

Products for maintenance of concrete, including the following:

1. Products for waterproofing.

1.2 RELATED SECTIONS

- A. Section 07 – Thermal and Moisture Protection.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Installation methods.
- C. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square representing actual product, color and patterns.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 5 years' experience in manufacturing similar products.
- B. Installer Qualifications: Minimum 2 years' experience in installing similar products.
- C. Source Limitations: For repair products, obtain each color, grade, finish, type and variety of product from single source and from single manufacturer with resources to provide products of consistent quality in appearance and physical properties.
- D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 1. Finish areas designated by Architect.
 2. Do not proceed with remaining work until workmanship is approved by Architect.
 3. Refinish mock-up area as required to produce acceptable work.

1.5 PRE-INSTALLATION MEETINGS

- A. Convene at least two weeks prior to starting work of this section.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.



- B. Handling: Handle materials to avoid damage.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.8 SEQUENCING

- A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Product Performance:

Viscosity at 77°F – ASTM D2196	450 to 550 cps
VOCs (Rule #1113 of California's SCAQDM) *	1 g per L
Solids content – ASTM D2369 B	99%
- B. Acceptable Manufacturer:

MAPEI North America
1144 E. Newport Center Dr.; Deerfield Beach, FL 33442
Toll-Free for CRS Technical Services: Tel. 888-365-0614
Email: CRS@mapei.com
Web: www.mapei.com
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
- D. Substitutions: Not permitted.

2.2 POLYURETHANE GROUT

- A. Low-viscosity, flexible, hydrophobic polyurethane grout used to stop water filtration in concrete structures.
 - 1. Product: Subject to compliance with requirements, provide MAPEI Corporation; Resfoam HB 45.
 - 2. Product shall not be re-dispersible in water after during.
 - 3. Viscosity: Not less than 450 to 550 cps at 77°F by ASTM D2196.

2.3 MISCELLANEOUS MATERIALS

- A. Portland cement: ASTM C150/C150M, Type I, II or III unless otherwise indicated.
- B. Water: Potable.



2.4 MIXES

- A. General: Mix products, in clean containers, according to manufacturer's written instructions.
 - 1. Do not add water, thinners or additives unless recommended by manufacturer.
 - 2. When practical, use manufacturer's premeasured packages to ensure that materials are mixed in proper proportions. When premeasured packages are not used, measure ingredients using graduated measuring containers; do not estimate quantities or use shovels or trowels as units of measure.
 - 3. Do not mix more materials than can be used within time limits recommended by manufacturer. Discard materials that have begun to set.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Compatible with common construction materials such as concrete, concrete masonry units (CMUs) or brick structures.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 MIXING

Before product use, take appropriate safety precautions. Refer to the Safety Data Sheet for details.

- A. For proper reaction times, Resfoam HB 45 must be mixed with Resfoam HBA 45 accelerator between 1% and 10% by weight.
- B. Validation of the pre-blend of Resfoam HB 45 and Resfoam HBA 45 is required to verify the proper mixing ratio for achieving the desired reaction times for a project. Pre-blend tests should be conducted until desired reaction times are met. Note that the pre-blend should not be pumped, but rather mixed by hand in a small container.

Pre-blend design:

- A. 100 parts of Resfoam HB 45 by weight.
- B. Appropriate ratio of Resfoam HBA 45 by weight per Table 1 in the technical data sheet for Resfoam HB 45.
- C. 5 parts of water by weight.

Pre-blend preparation:

- A. Add Resfoam HBA 45 to Resfoam HB 45 and mix at slow speed to a homogenous state.
- B. Add the water and mix thoroughly.
- C. Determine the start time as the instant that the water is added to the mix (Step B above).
- D. Determine the foam time as the moment at which the material begins to foam.
- E. Determine the tack-free time as the moment when the material is no longer tacky to the touch.



Based on pre-blend validations, mix the appropriate amount of Resfoam HBA 45 accelerator with Resfoam HB 45 to realize the desired gel time. Mix only enough material to be used within a reasonable amount of time.

3.3 PREPARATION AND INSTALLATION

Read all installation instructions thoroughly before installation. Jobsite preparation depends on the type of injection method that is selected. Two techniques of injection are described below along with the site preparation.

Activated oakum technique:

The activated oakum technique is a method to help reduce or eliminate heavy water inflow in wide cracks or joints.

- A. Saturate oakum rope or absorbent industrial towels in Resfoam HB 45 already mixed with Resfoam HBA 45, and then soak the rope or towels in water. Resfoam HB 45 will begin reacting once dipped in water.
- B. Force the saturated pieces into the leaking crack or joint. Push them deeply into the crack or joint using a blunt instrument. As Resfoam HB 45 expands with the support of the rope or towels, water flow will be reduced, and the rope or towels should be held in place by the extension.
- C. Proceed by drilling holes and completing either an encapsulation or crack-injection repair as indicated on the technical data sheet for Resfoam HB 45.

Inject the Resfoam HB 45 catalyzed mix using a single-component injection pump. If the crack is dry, inject water at low pressure through each packer by using a separate pump, which reduces the risk of material gelling within the pump and clogging pump valves and hoses.

Crack injection technique:

- A. Prepare the repair area by drilling holes at approximately 45-degree angles to intersect the void (crack, cavity, fissure or joint) at about half the depth of the concrete. Holes are typically drilled on opposing sides of the void in an alternating (staggered) pattern. The spacing is dependent on the crack size, width and configuration, and typically ranges from 6" to 2 feet (15 cm to 61 cm).
- B. Flush all drill waste liberally from holes with water to ensure a clean, wet contact surface before installing packers and injecting material.
- C. Ensure that packers are securely and firmly placed in the pre-drilled holes; once the packer is placed, install the injection tip.
- D. Inject the material by utilizing a single-component pump. Pump pressure typically ranges from 250 psi to 2,500 psi.
- E. Begin injecting Resfoam HB 45 from the lowest packer and watch for material escaping the surface of the crack or adjacent packers. Move systematically up the packers, ensuring that Resfoam HB 45 penetrates the entire surface area of the crack.
- F. Visually inspect injected areas for consistency of reacted material to ensure complete penetration of crack or fissure. If consistency is observed, the installer must adjust water ratio to achieve proper results.
- G. For maximum effectiveness in completely filling voids, apply a sufficient amount of Resfoam HB 45 to produce a satisfactory ratio of water to product. Excess material at the site may be



removed with a scraper or by waterblasting as soon as the material has cured.

END OF SECTION