

ChemMasters

Installation Guidelines

ChemPlug is a fast setting, expansive hydraulic cement and is compounded to withstand continual exposure to water, even under pressure. It is cement based, fills and seals the pores and voids of the concrete or masonry surface.

1.0 General

1.1 Scope

This specification covers the performance characteristics and application procedures for providing a fast setting, expansive hydraulic cement, for industrial, commercial, residential, electrical or plumbing applications, above or below grade.

1.2 Material Description

The repair mortar shall be a single component, fast-setting, expansive hydraulic cement, requiring only water for mixing. The compound should set under water to repair leaks, set rapidly for emergency repairs, and provide high compressive strength for durable repairs.

1.3 Typical Applications

- A. Industrial, commercial, residential, electrical or plumbing applications, above or below grade
- B. Stop water flow through cracks and holes in concrete and masonry surfaces, even active pressure leaks
- C. Leaks in basements, foundations, sewer pipes and manholes.
- D. Emergency repair of ruptured water pipe, damaged boat hulls and other surfaces
- E. Swimming pools, cisterns, troughs, under water repairs, silos, tunnels, sewers, elevator pits, electrical vaults
- F. Watertight seals around conduit, gas and water lines through walls

1.4 Limitations

- A. ChemPlug hardens in 3-5 minutes. Prepare only enough for immediate use
- B. Seal unused powder in airtight, moisture proof containers for later use
- C. Do not use as topping or traffic bearing repair mortar.
- D. ChemPlug is not designed to be used as a structural or machine support grout. Consult ChemMasters Technical Service staff for recommendations

1.5 Quality Assurance

The repair contractor shall have experience and proficiency specific to the repair type and shall be approved by the engineer and the material supplier. The material supplier shall provide job service as required to assure proper handling and installation of materials. The field representative shall instruct as needed to assure that handling, mixing, placing and finishing of materials are in accordance with specifications.

1.6 Delivery, Storage and Handling

The product shall be delivered in the original, unopened containers. It shall be labeled with the manufacturer's name, product name and lot number. Materials should be stored at the job site under dry conditions and at a temperature of 40°F (4°C) to 90°F (32°C).

1.7 Environmental Requirements

All materials used for the repair work shall be VOC compliant. The manufacturer shall supply the appropriate material safety data sheets upon request.

1.8 Site Conditions

Job conditions shall be maintained at standards that allow underlayment placement within temperature and cleanliness requirements. Unusual conditions as uncovered during the course of work shall be brought to the engineer's attention for analysis and disposition. These conditions include but are not limited to poor quality base concrete, random cracks and deep oil penetration.

2.0 Materials

2.1 Approved Materials and Manufacturers

2.1.1 Product Standard

ChemPlug, as manufactured by ChemMasters, 300 Edwards Street, Madison, Ohio, 44057-3112, 1-800-486-7866, is considered to conform to the requirements of this specification and shall be the cement. ChemPlug a fast setting, expansive hydraulic cement, for industrial, commercial, residential, electrical or plumbing applications, above or below grade.

2.1.2 Substitutions

No submittals for substitutions will be accepted after the bid date. All submittals must be made in writing to the engineer with supporting technical data sheets and test data showing complete equivalent performance.

2.2 Packaging/Coverage/Estimating

2.2.1 Packaging

A. ChemPlug is available in 10 lb./4.5 Kg cans packed 4 per case and 50 lb./22.7 Kg bags, shipped 60 per pallet shrink wrapped.

2.2.2 Coverage/Estimating

A. 17 in³ per lb.607 cm³ per Kg

B. 50 pounds yields 0.5 Ft.³ 22.7Kg yields 0.014 M³

2.2.3 Storage:

Store in tightly closed containers in cool, dry area. Shelf life of properly stored material is one year from date of manufacture.

2.3 Engineering Properties

The following engineering properties shall be typical of material performance when tested under laboratory conditions at 72°F (22.2°C).

2.3.1 Plastic Properties

2.3.1.1 Set Times:

A. ChemPlug 3-5 minutes @ 70° F./21° C.

B. ChemPlug-W 3-5 minutes @ 50° F./10° C.

2.4 Accessory Materials as manufactured by ChemMasters, 300 Edwards Street, Madison, Ohio, 44057-3112, 1-800-486-7866, is considered to conform to the requirements of this specification.

3.0 Execution

3.1 References

Refer to ChemMasters MSDS and Technical Data Sheets.

3.2 Surface Preparation:

A. Enlarge crack or hole to a depth and width of 3/4"/1.9 cm. Undercut is best. Do not "V" cut.

B. Chip out joint cutting into both wall and floor in wall to floor joints.

C. Brush out loose material. If leak is not active, dampen surface dry.

3.3 Mixing:

A. Add clean, drinkable, room temperature water to a small amount of ChemPlug. Mix to putty-like consistency.

B. Warm mixing water will speed setting time, cold will slow it.

C. Do not mix more than can be placed in 3 minutes.

D. ABOVE NORMAL TEMPERATURES: Over 70° F./21° C. ChemPlug will set very quickly and structural strength is reduced.

- E. Never use water over 100 °F./38 °C. or heat material over 70° F./21° C. Mix with ice water to slow set. Protect material from hot sun.
- F. BELOW NORMAL TEMPERATURES: Low temperatures, under 40° F./4° C., delay set and make it difficult to stop flowing water. Warm ChemPlug and mixing water to 70 °F./21 °C. to speed set time or use ChemPlug-W.

3.4 Application:

- A. Compact ChemPlug firmly into opening and hold tightly with trowel or gloved hand for about 2 minutes or until mortar is hard. Do not over trowel surface. Grinding or twisting motions when placing will weaken the repair.
- B. TO STOP RUNNING WATER: Seal crack from top to bottom. At point of greatest pressure force ChemPlug firmly into opening and hold in place with trowel or gloved hand. Exert pressure until it hardens and water stops flowing. After material has set firmly, shave excess even with surface.
- C. TO SEAL WALL TO FLOOR JOINT: Force ChemPlug into crack and smooth forming cove at base of wall.
- D. SETTING ANCHOR BOLTS OR FIXTURES: Make a hole at least 0.5 in/1.25 cm larger on all sides than the bolt or fixture. Walls of hole should be dampened. Blow out any excess water. Pack firmly with ChemPlug. Force in bolt or fixture. Tamp ChemPlug firmly in place. Keep damp for 15-30 minutes. Do not apply excessive load for several hours.
- E. UNDERWATER APPLICATIONS: Contact ChemMasters Technical Service staff for detailed instructions.

3.6 Curing:

- A. ChemPlug continues to gain strength as long as it is damp. It should be kept wet for at least 30 minutes to reach maximum initial strength. ChemPlug locks itself in by expanding as it cures. It becomes stronger and more watertight when subjected to water pressure.

3.7: Clean Up:

- Before the mixed material sets, clean tools and equipment with water.