



Quick-Set Multi-Temp Structural Epoxy Mortar for Class 6-9 Industrial Concrete Floor Repair

TECHNICAL DATA

AHX-1

1. Product Name

ARMOR-HARD EXTREME

2. Manufacturer

METZGER/MCGUIRE

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3. Product Description

Composition

Armor-Hard Extreme is a two-component, 100% solids, epoxy system designed for ambient to cool temperature applications. **Armor-Hard Extreme** was developed specifically for the repair of industrial concrete floors subject to hard-wheeled traffic.

Related Products

Armor-Hard is available in two primary versions:

Armor-Hard Extreme Liquid or Kit - Quick-set properties, multiple temperature applications.

Armor-Hard Liquid or Kit - Early-set properties (faster than standard structural epoxies, slower than **Extreme**), use limited to temperatures of 50°F +.

Typical Use

As a mortar;

- Large spall repair/rebuilding of joint shoulders
- As a topping for delaminated slabs
- Fill in holes, potholes, gouges, ruts, popouts

As a liquid;

- Fill wider random cracks

4. Limitations

- Should not be used in active or moving joints unless a relief joint is formed or saw cut
- For deep repairs at warm temperatures, install in maximum 1" layers to avoid shrinkage due to exotherm

5. Advantages

- Quick set allows for foot traffic in 1 hour and normal traffic in 2 hours
- Superior wear and impact resistance
- Wider application range than most structural epoxies, from +120°F (49°C) down to 20°F (-7°C)
- Low odor; 100% solids
- USDA/FDA/LEED acceptable

6. Color

Epoxy liquid color is a translucent/clear. If blended with aggregate mortar color will become aggregate color. Standard aggregate color for kits is Dovetail Gray. Optional aggregate colors in kits are Standard Gray, Natural (light tan/brown in color), and Porpoise.

7. Packaging

Armor-Hard Extreme is packaged in two forms;

Armor-Hard Extreme Liquid:

1 gallon (U.S.) unit, composed of two cans of pre-measured epoxy liquid (A & B=1 gallon); 30 gallon (U.S.) kit, composed of 6 pails of epoxy liquid (25 gals. Part A, 5 gallons Part B).

Armor-Hard Extreme Kit:

Pre-ratioed kit containing 5 quarts of **Armor-Hard** aggregate and just over 2 quarts of **Armor-Hard Extreme** liquid. When combined, kit has a net yield of approximately 1.3 gallons (U.S.) epoxy mortar, or approximately 300 cubic inches.

8. Chemical Resistance

Excellent

Motor Oil
Gasoline
Jet Fuel
Methanol
10% Lactic Acid
10% Nitric Acid
30% Citric Acid
10% Acetic Acid
50% Sulfuric Acid
75% Phosphoric Acid
50% Sodium Hydroxide

Good

1,1,1-Trichloroethane
Toluene
70% Sulfuric Acid
36% Hydrochloric Acid
30% Nitric Acid

Not Recommended

MEK
50% Acetic Acid
50% Nitric Acid
Methylene Chloride

9. TECHNICAL PROPERTIES

The following properties are for the installed mortar using Metzger/McGuire's custom blended aggregate. Results may vary when using other aggregates.

Compressive Strength	12,800 psi
Tensile Strength	2,000 psi
Flexural Strength	4,400 psi
Adhesive Strength	Concrete breaks
Shore Hardness (D)	D92
Solids Content	100%
Color, Mixed, Of Liquid	Translucent/clear*
Mix Ratio, By Volume	5A:1B
Abrasion Resistance - ASTM C779 Procedure A	
30 minutes	0.006" (.15mm)
60 minutes	0.012" (.30mm)

*Mortar color will be aggregate color

	@20°F	@40°F	@70°F
Working Time	20 mins.	15 mins.	12 mins.
Foot Traffic Ready	15 hours	5 hours	1 hours
Grindable Time	18 hours	6 hours	1.5 hours
Heavy-Duty Traffic	24 hours	8 hours	2 hours

All data based on 8"x 8"x .75" repair with aggregate and liquid at 70°F at time of mixing. Lower material temperatures or smaller defects will extend these times.

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Customer Service - (800) 223-MM80 - Technical Assistance

E-Mail: info@metzgermcguire.com • Web Site: www.metzgermcguire.com

10. Availability

Armor-Hard Extreme is available through quality construction supply distributors in most major U.S. cities and through distributors/representatives in certain foreign markets and through our New Hampshire headquarters.

11. Installation Instructions

Surface Preparation

All surfaces must be clean, dry, structurally sound and free of grease, oil, coatings, sealers, paint, etc. Surface preparation may be accomplished by grinding, sawing, chipping, sand-blasting, etc. Prevent featheredging by creating a vertical edge (1/2" minimum, 3/4" preferred) at outer point of defect to be repaired. See *Metzger/McGuire's Guide to Basic Floor Repair*, visit www.metzgermcguire.com or call us at 800-223-6680 for more information on repair procedures/applications.

Mixing (Caution: Read product container labels and SDS before using).

Due to 5:1 ratio, the entire contents of both epoxy parts should be used. If using less than full unit, "A" and "B" ratio must be measured precisely by volumetric comparison.

For fastest cure time, material should be stored and mixed at ambient temperature (i.e. 70°F). Warmer material temperature will lead to reduced pot life, cooler temperatures will lead to longer working time (and slower cure time). Combine parts "A" and "B" in a plastic pail and mix for 1.5 minutes using a Jiffy-type mixer and a slow speed drill. If using as a liquid, dispense promptly due to short pot life. If using as a mortar, application of mixed liquid as a primer coat (brush) will enhance mortar adhesion.

Mortar mixing is best achieved using a 1/2" heavy-duty drill with a mortar mixing paddle or a rotating pail mixer. Thoroughly mix epoxy liquid, then gradually add aggregate. Continue to add aggregate until mixture appears slightly dry, but all aggregate is "wetted" with the epoxy. Mix for an additional 1-2 minutes.

Dispensing

Promptly install mortar into defect, spread evenly using clean steel trowel. Finish installing each unit before mixing the next. Trowel mortar to desired density and finish texture. If mortar starts to stiffen and creates trowel drag, wipe trowel with solvent such as denatured alcohol, toluene, xylene or MEK. The final material density and appearance will reflect trowel pressure and intensity. Working time for mortar is approximately 12 minutes at 70°F.

Clean Up

Spills of unmixed components can be cleaned up with solvent (Toluol, Xylol, MEK, denatured alcohol, etc). Clean tools and spills before epoxy or mortar has set using solvent or warm soapy water.

12. Coverage, Aggregate Loading

Armor-Hard Extreme Liquid:

One (1) gallon of **Armor-Hard Extreme** liquid contains approximately 232 cubic inches of liquid. When combining with aggregate use a dry, bagged type of even consistency/gradation. Grit sizes of #20 to #40-44 are commonly available through tile/masonry suppliers, etc. Blending a smaller grit (#40) with a larger grit (#20) can improve trowel-ability. The surface density of your repair will depend upon aggregate size, method of troweling and aggregate loading.

As a rule, **Armor-Hard Extreme** will accept an aggregate loading of approximately 3 to 6 times its volume (begin with 3 parts of sand aggregate to one part of **Armor-Hard Extreme** liquid and work up to reasonable mixture for placement).

Approximate Liquid Epoxy + Sand Aggregate Yields

Epoxy (gals.)	1	1	1	1	1
Sand (gals.)	1	1.5	2	2.5	3
Yield (gals.)	1.6	1.9	2.2	2.5	2.8

If you are concerned about selecting the proper aggregate, or achieving the proper aggregate loading, use the **Armor-Hard Extreme** KIT. This kit comes with just over 2 quarts of **Armor-Hard Extreme** epoxy liquid and a pre-measured amount (5 quarts) of **Armor-Hard** aggregate developed to yield a dense, easily troweled mortar. Mortar yield of the **Armor-Hard Extreme** KIT is approximately 1.3 gallons, enough to repair approximately 300 cubic inches.

13. Shelf Life and Storage

Armor-Hard Extreme has a guaranteed shelf life of two (2) years if containers remain unopened. Store in dry, cool areas away from excessive heat, freeze/thaw and sunlight.

14. Safety

This product is for industrial use only. Use only in well ventilated areas. Practice all normal jobsite safety precautions (ventilated work area, proper safety equipment, etc). Thoroughly read SDS and installation instructions for additional information prior to using material.

15. Food Related Facilities

Once cured, **Armor-Hard Extreme** is acceptable for use in USDA/FDA regulated facilities. In applications where existing food or food packaging may be contaminated, contact Metzger/McGuire to discuss application.

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WARRANTY: Metzger/McGuire Co. solely and expressly warrants that its product shall be free from defects in material and workmanship for 12 months from the date of purchase. Unless authorized in writing by an officer of Metzger/McGuire, no other representations or statements made by Metzger/McGuire or its representatives, in writing or orally, shall alter this warranty. Metzger/McGuire makes no warranties, implied or otherwise, as to the merchantability or fitness for ordinary or particular purposes of its products and excludes the same. If any Metzger/McGuire product fails to conform with this warrant, Metzger/McGuire will replace the product at no cost to the purchaser. Purchaser's sole remedy in any case shall be limited to the purchase price or replacement cost of product and specifically excludes labor and the cost of labor, lost wages and opportunity costs, and all other possible incidental, consequential or special damages resulting from any claim of breach of warranty, breach of contract, negligence or any legal theory. Any warranty claim must be made within one (1) year from the date of material purchase. Metzger/McGuire does not authorize anyone on its behalf to make any written or oral statements which in any way alter the installation procedures or written installation instructions published in its product literature or on its packaging labels. Any installation of Metzger/McGuire products which fails to conform with such installation information or instructions shall void this warranty. Purchaser shall be solely responsible for determining the suitability of Metzger/McGuire's products for the purchaser's intended purpose.