

# TECHNICAL DATA AHX-1

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



## 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 10°C +.

### 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 25mm 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 +49°C down to -7°C
- Low odour; 100% solids
- USDA/FDA/LEED acceptable

## 6. COLOUR

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

## 7. PACKAGING

**Armor-Hard Extreme** is packaged in two forms;

### Armor-Hard Extreme Liquid:

3.8L composed of two cans of pre-measured epoxy liquid (A & B=3.8L); 114L kit, composed of 6 pails of epoxy liquid (95L Part A, 19L Part B).

### Armor-Hard Extreme Kit:

Pre-ratioed kit containing 4.7L of Armor-Hard aggregate and just over 4.7L of Armor-Hard Extreme liquid. When combined, kit has a net yield of approximately 4.9L epoxy mortar, or approximately 4.9 cubic mm.

## 8. CHEMICAL RESISTANCE

EXCELLENT	GOOD
Motor Oil	1, 1, 1-Trichloroethane
Gasoline	Toluene
Jet Fuel	70% Sulfuric Acid
Methanol	36% Hydrochloric Acid
10% Lactic Acid	30% Nitric Acid
10% Nitric Acid	
30% Citric Acid	<b>Not Recommended</b>
10% Acetic Acid	MEK
50% Sulfuric Acid	50% Acetic Acid
75% Phosphoric Acid	50% Nitric Acid
50% Sodium Hydroxide	Methylene Chloride

## 9. TECHNICAL PROPERTIES

The following properties are for the installed mortar using Metzger/McGuire's 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%		
COLOUR, MIXED, OF LIQUID	Translucent/clear*		
MIX RATIO, BY VOLUME	5A:1B		
Mortar colour will be aggregate colour	@-6°C	@4°C	@21°C
WORKING TIME	20 mins	15 mins	12 mins
FOOT TRAFFIC READY	15 hours	5 hours	1 hour
GRINDABLE TIME	18 hours	6 hours	1.5 hours
HEAVY-DUTY TRAFFIC	24 hours	8 hours	2 hours

All data based on 200mm x 200mm x 1900 repair with aggregate and liquid at 21°C at time of mixing. Lower material temperatures or smaller defects will extend these times.

## 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

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edge (12mm minimum, 19mm preferred) at outer point of defect to be repaired. See Metzger/McGuire's Guide to Basic Floor Repair, visit [www.metzgermcguire.com](http://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. 21°C). 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 12mm 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 21°C.

**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 3.8L of Armor-Hard Extreme liquid contains approx. 3.8 cubic mm 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 (L)	3.8	3.8	3.8	3.8	3.8
SAND (L)	3.8	5.7	7.6	9.5	11.4
YIELD (L)	6	7.2	8.3	9.5	10.6

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 1.9L of Armor-Hard Extreme epoxy liquid and a pre-measured amount (4.75L) of Armor-Hard aggregate developed to yield a dense, easily troweled mortar. Mortar yield of the Armor-Hard Extreme KIT is approximately 4.9L, enough to repair approx. 4.9 cubic mm.

## 13. SHELF LIFE AND STORAGE

**Armor-Hard Extreme** has a guaranteed shelf life of 12 months 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.

## 16. MATERIAL WARRANTY

**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 authorised 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 labour, 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 authorise 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.



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