



## PRODUCT DESCRIPTION

Five Star® ARMX™ DeepGuard™ UW is a two-component, high build, 100% solids, chemical resistant epoxy coating specifically formulated for underwater applications while also delivering excellent performance on wet and dry substrates. It is suitable for use on concrete, wood, or steel.

## ADVANTAGES

- Adhesion to underwater, wet, and dry surfaces
- High chemical resistance
- Excellent abrasion resistance
- Anti-corrosive and fiber reinforced
- Resistance to chipping or cracking
- Low permeability
- Low odor / Low VOC
- Brush, squeegee, trowel or sponge apply

## USES

- Underwater applications, wet, and dry surfaces
- Marine piles and structures
- Concrete, wood, and steel surfaces
- Concrete tanks
- Secondary containment surfaces
- Process equipment supports and pads

## PACKAGING AND YIELD

DeepGuard UW is a two-component system consisting of premeasured containers of resin and hardener. It is available as a 2 gallon (7.8 liter) unit yielding coverage of approximately 106 sq. ft. @ 30 mils (9.8 sq. m. @ 762 microns).

## SHELF LIFE

Two years in original unopened packaging when stored at normal ambient temperatures.

| TYPICAL PROPERTIES AT 77°F (25°C)               |                                           |
|-------------------------------------------------|-------------------------------------------|
| Color                                           | Light Gray<br>Special Order: White, Black |
| Finish/Gloss                                    | High Gloss                                |
| Wet Film Thickness (WFT)                        | 30 - 60 mils                              |
| Hardness, ASTM D 2240 Shore D                   | 81+                                       |
| Tensile Strength, ASTM D 638                    | 5,600 psi (38.6 MPa)                      |
| Compressive Strength, ASTM D695, 7 Day          | 7,400 psi (51.0 MPa)                      |
| Mixed Viscosity, LV-04 (64), 50 rpm, 50% torque | 197,000 cps                               |
| Mixed Density                                   | 1.4 g/ml <sup>3</sup>                     |
| Solids by Volume                                | 100%, VOC free                            |
| Flash Point                                     | > 200°F (93°C)                            |
| Impact Resistance, ASTM D2794                   | 30 in/lbs. (3.4 joules)                   |
| Taber Abrasion, MG/1000 at CS17                 | 34 mg                                     |
| Adhesion to Steel, ASTM D4541                   |                                           |
| Wet Surface                                     | +2,000 psi (13.8 MPa)                     |
| Dry Surface                                     | +3,300 psi (22.8 MPa)                     |
| Adhesion to Concrete, ASTM D4541                | 800 psi (5.5 MPa):<br>Concrete Failure    |
| In-Service Time:<br>Foot Traffic / Forklift     | 24 hours / 48 hours                       |
| Tack Free Time                                  | 8 hours                                   |
| Pot Life at 77°F (25°C)                         | 40 minutes                                |

The data shown above reflects typical results based on laboratory testing under controlled conditions. Reasonable variations from the data shown above may result. Test methods are modified where applicable.

| CHEMICAL RESISTANCE CHART                                                                                                             |                          |                                 |
|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------------------------|
| Solvents                                                                                                                              | Acids (Conc.)            | Bases/Alkalines (Conc.)         |
| Acetaldehyde - 2                                                                                                                      | Acetic (1-50%) - 1       | Ammonia (1-25%) - 4             |
| Acetone - 2                                                                                                                           | Adipic (1-25%) - 4       | Ammonium Hydroxide (1-25%) - 4  |
| Acetonitrile - 2                                                                                                                      | Azotic (1-25%) - 1       | Aniline - 4                     |
| Acrylonitrile - 2                                                                                                                     | Boric (1-sat.) - 2       | Barium Hydroxide (1-sat.) - 4   |
| Butyl acetate - 2                                                                                                                     | Chromic (1-30%) - 1      | Black Pulp Liquor - 4           |
| Cyclohexane - 4                                                                                                                       | Chlorohydric (1-37%) - 3 | Butyl Amine - 4                 |
| Ethanol - 4                                                                                                                           | Citric (1-sat.) - 4      | Cadmium Cyanide Plating - 4     |
| Ethyl acetate - 2                                                                                                                     | Ethanoic (1-50%) - 2     | Calcium Hydroxide (1-25%) - 4   |
| Ethyl alcohol - 3                                                                                                                     | Ethylic (1-50%) - 2      | Chromium Trioxide (1-25%) - 4   |
| Formaldehyde - 2                                                                                                                      | Hydrochloric (1-37%) - 2 | Copper Cyanide Plating - 4      |
| Isopropyl Alcohol - 3                                                                                                                 | Hydrofluoric (1-20%) - 1 | Dimethyl Aniline - 4            |
| Jet Fuel - 4                                                                                                                          | Lactic (1-sat.) - 4      | Hydrogen Peroxide (1-30%) - 4   |
| Kerosene - 4                                                                                                                          | Nitric (1-25%) - 1       | Green Pulp Liquor - 4           |
| Methyl Ethyl Ketone - 1                                                                                                               | Oleic (100%) - 4         | Soap solutions - 4              |
| Methanol - 2                                                                                                                          | Oxalic (1-sat.) - 4      | Sodium Cyanide (1-15%) - 4      |
| Methyl Alcohol - 2                                                                                                                    | Phosphoric (1-60%) - 4   | Sodium Hypochlorite (1-9%) - 4  |
| Rubbing Alcohol - 3                                                                                                                   | Sulfuric (1-70%) - 3     | Sodium Hydroxide (1-50%) - 4    |
| Wood Alcohol - 2                                                                                                                      | Sulfuric (>70-98%) - 1   | Triethanolamine - 4             |
| 1,1,1 Trichloroethane - 3                                                                                                             |                          | Triethylamine - 4               |
| Phenol - 4                                                                                                                            |                          | Potassium Hydroxide (1-sat) - 4 |
|                                                                                                                                       |                          | Motor/Lubricating Oil - 4       |
| <b>KEY: 4 = Immersion</b><br><b>3 = 24 hours or less exposure</b><br><b>2 = 1 hour or less exposure</b><br><b>1 = Not recommended</b> |                          |                                 |

## APPLICATION INFORMATION

| Cure Schedule & Recoat Window |             |             |              |
|-------------------------------|-------------|-------------|--------------|
| Substrate Temperature         | 50°F (10°C) | 77°F (25°C) | 100°F (38°C) |
| Minimum Recoat                | 24 hours    | 8 hours     | 3 hours      |
| Maximum Recoat                | 5 days      | 72 hours    | 36 hours     |

| Maximum Operating Temperature      |
|------------------------------------|
| -40 °F to +180 °F (-40°C to +82°C) |

## PLACEMENT GUIDELINES

Minimum application temperature of substrate is 40°F - 100°F (4 - 38°C). Low temperatures adversely affect flowability and strength gain. Cold temperatures lengthen cure time, hot temperatures decrease cure time. Increased slip/skid, chemical, and/or wear resistance with broadcast/topcoat application with dried silica sand. Additional applications/coats will increase protection and extend service life. Surface permeation, UV exposure, usage, and location are all variables to consider. These can/will lower life expediency of the product. UV exposure may alter the product's color; a polyurethane coating can be applied for additional protection.

1. **SURFACE PREPARATION:** Proper surface preparation plays a key part in obtaining optimum performance. Any bond breaking materials such oil, fuel, curing compounds and more need to be removed so they do not inhibit bond.
  - **BARE CONCRETE:** Surfaces should be allowed to cure for a minimum of 20 days before coating. Excessive weak surface laitance must be removed by blasting (water/sand) or by other mechanic means. Aged, uncoated concrete surfaces are best prepared by abrasive methods. Contamination by oil or grease should be removed. Concrete naturally contains interconnected capillaries, bugholes, honeycombing, air voids, and surface porosity. Mechanical surface preparation frequently exposes these defects. As concrete warms during the day, trapped air within these voids expands and migrates toward the surface. The escaping air can become trapped beneath the curing coating, producing raised bubbles, pinholes, or craters. See the Placement section for a technique to displace the trapped air.
  - **COATED CONCRETE:** Worn but sound coatings may be coated after a thorough and vigorous cleaning. DeepGuard UW will not soften existing coatings since it contains no solvents. Ultimate adhesion of the coating system will be determined by strength and adhesion of existing coating. If the integrity of the existing coating is questionable, remove by abrasive blasting or other mechanical means.
  - **METALLIC SUBSTRATE:** The best preparation method is by abrasive blasting using clean, dry compressed air to achieve a SSPC-SP10 "White Metal Blast" with a 2.5 mil anchor profile. When not possible to abrasive blast, provide alternative surface profile by abrasive discing, needle gunning, or high pressure water blast over 8,000 psi.
  - **WOOD:** Cleaning to remove algae and marine fouling when it comes to surface preparation. This must be removed by high pressure water blast over 3,500 psi or by other mechanic means.
  - **BELOW WATER:** Remove marine biological settlement and corrosion by high pressure water blast over 3,500 psi or by other mechanic means. Conventional air/abrasive blasting works well at shallow depths however efficiency falls off sharply below 10 feet. Hand held power tools such as needle guns or grinders can give good results in small areas. Apply within 45 minutes after surface preparation to minimize rusting or resettlement of biological fouling which interferes with adhesion.
2. **MIXING:** For optimum performance, all components should be conditioned to between 65°F and 85°F (18°C and 29°C). Premix both Component A (resin) and Component B (hardener) thoroughly before mixing. Place all of Component A and Component B into a suitable container. Component A and Component B are mixed in a **1:1 ratio by volume**. Mix Component A and Component B with a slow speed jiffy-style mixer for no more than 3 minutes. Avoid air entrapment. Place mixed material immediately. Mix only that amount of material that can be placed within 40 minutes.
3. **PLACEMENT:** DeepGuard UW may be applied using a stiff bristle brush, trowel, or sponge. Apply material in even coats. DeepGuard UW should be firmly worked into any defect from multiple directions to completely displace trapped air and eliminate hidden air pockets.
4. **POST PLACEMENT:** In-service operation may begin as early as 24 hours assuming proper cure temperature.
5. **CLEAN UP:** Tools with fresh material may be cleaned with MEK or lacquer thinner.

For further questions, or if additional information is required, contact your local Five Star® Technical Sales Representative at 1-800-243-2206.

## CAUTION

FOR INDUSTRIAL USE ONLY. PRIOR TO USE, REFER TO SAFETY DATA SHEET.

| SKU/PRODUCT CODE | DESCRIPTION                     | #UNITS/PALLET | UNIT SIZE                                                                     |
|------------------|---------------------------------|---------------|-------------------------------------------------------------------------------|
| 34030            | Five Star® DeepGuard™ UW (gray) | 72            | Resin (A): 10.4 lbs. (4.7 kg.) pail<br>Hardener (B): 14.0 lbs. (6.4 kg.) pail |

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