Z-DECK

Low-modulus, medium-viscosity, epoxy resin binder

DESCRIPTION

Z-Deck is a two-component, 100 % solids, low modulus, moisture-tolerant, epoxy resin binder. It conforms to the current ASTM C-881, Type III, Grade-2, Class B&C and AASHTO M-235 specifications.

ADVANTAGES

- Tolerant to moisture exposure before, during and after cure.
- Convenient easy mix ratio A:B = 1:1 by volume.
- Excellent strength development.
- Desirable viscosity for easy, efficient application of a broadcast overlay.
- Low odor, zero VOC, nonflammable
- Rapid cure, high early strength
- Excellent adhesion for ACP and PCCP HFST applications
- Low modulus

USES & APPLICATIONS

- Bridge Deck Overlay and Waterproofing
- High Friction Surface Treatments
- Parking structure ramps and decks
- Elevated PCCP Decks
- Chloride Ion Screening
- Repair Mortars

PACKAGING

- 10 Gallon Kit (2 ea 5 Gallon Buckets)
- 110 Gallon kit (2 ea 55 Gallon Drums)
- 550 Gallon Kit (2 ea 275 Gallon IBC)

PRODUCT INFORMATION

- **COLOR**: Clear to light amber.
- **SHELF LIFE**: 2 years in original, unopened containers.
- **STORAGE CONDITIONS**: Store dry at 40–95 °F (4–35 °C). Condition material to 65–85 °F (18–29 °C) before using.
- **VISCOSITY:** Approximately 2,000 cps.

COVERAGE

Please use the below table for an estimated coverage for a two layer nominal 3/8" broadcast overlay system. Coverages may vary based on substrate condition, temperature and application methods.

	EPOXY	AGGREGATE
Course 1	1 gallon/40 sq. ft.	10 lbs./sq. yd.
Course 2	1 gallon/20 sq. ft.	14 lbs./sq. yd.

CURE TIMES

Theis table provides estimated cure times to be able to open to traffic. It is the applicators responsibility to verify the suitability of the installation prior to the allowance of traffic. These are estimated times only, substrate temperature, material temperature and ambient sunlight conditions may alter the cure requirements.

	AVERAGE TEMPERATURE OF MATERIALS & SUBSTRATE (°F)					
Cure Temp	60-64	65-69	70-74	75-79	80-84	85+
Course 1	4 hrs	3 hrs	2.5 hrs	2 hrs	1.5 hrs	1 hr
Course 2	5-6 hrs	5 hrs	4 hrs	3 hrs	3 hrs	3 hrs

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PHYSICAL PROPERTIES

LABORATORY TESTS	RESULTS
C-881 Viscosity	1600-2200 cps
C-881 Gel Time	15-20 Minutes
C-884 Thermal Compatibility	Pass
D-2240 Shore D Hardness	65-75
D-570 Absorption	<0.2%
AASHTO T-277 Chloride Ion Permeability	0 coulombs, negligible
C-882 Bond Strength (14 day cure)	2,000-2,500 psi
C-883 Shrinkage	Pass
D-695 Compressive Modulus	80,000-100,000 psi
C-579 Compressive Strength 3 hours w/sand	1,000 psi
C-579 Compressive Strength 24 hours w/sand	5,000 psi
D-638 Tensile Strength	2,500-3,000 psi
D-638 Tensile Elongation	40-50%
D-790 Flexural Strength	2,000-3,000 psi
ACI 503R Adhesion to Concrete	>500 psi (concrete failure)

COMPRESSIVE STRENGTH AS REPAIR MORTAR

		Mortar 1:3		**Neat**
	40°F* (4°C)	73°F * (23°C)	90°F* (32°C)	73°F* (23°C)
8 Hour	-	1,900 (13.1)	2,800 (19.3)	-
16 Hour	-	4,300 (29.6)	5,000 (34.5)	1,850 (12.8)
1 Day	2,200 (15.2)	5,200 (35.9)	5,200 (35.9)	2,600 (17.9)
3 Day	6,500 (44.8)	6,800 (46.9)	5,900 (40.7)	6,200 (42.7)
7 Day	7,900 (59.5)	7,200 (49.6)	6,100 (42.1)	6,800 (46.9)
14 Day	8,800 (60.7)	7,600 (52.4)	6,100 (42.1)	7,000 (48.3)
28 Day	9,500 (65.5)	7,900 (54.5)	6,100 (42.1)	7,200 (49.6)

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DIRECTIONS FOR USE: Multi-Layer Bridge Deck Overlays

Substrate Preparation
Repair all surface defects and unsound, unbonded areas prior to surface preparation, Z-Crete or Z-Patch should be used for required repairs. Surface must be clean and sound. It may be SSD, but free of standing water and free of signs of surface moisture. Surface moisture level should be <4.5% as verified by ASTM F2659. Remove dust, laitance, grease, curing compounds, impregnations, waxes and any other contaminants that would inhibit bonding.

Preparation Work
Concrete: Should be cleaned and prepared to achieve a laitance and contaminant free, open textured surface (minimum CSP 5 as per ICRI texture pads) by shot blast cleaning or equivalent mechanical means.
Steel: Should be cleaned and prepared thoroughly by blast cleaning to white metal finish.
Surface should be blown down with oil free, dry compressed air as a final surface preparation step, ensuring all dust, debris and deleterious material is clear of the application area. Visually verify that the surface exhibits a uniform, clean appearance and all contamination has been removed.

Mixing
Hand Mixing**:** Proportion components A and B to 1:1 ratio by volume in a suitable mixing container. Mix components at a low speed (200-400 rpm) with a variable speed motor attached to a "Jiffy" style mixer for a minimum of 3 minutes (depending on material viscosity). Visually verify that the mixed material appears homogonous and well mixed. Take care while mixing not to entrain air into the overlay resin. Only mix enough material that can be adequately placed prior to the material gelling.
Mechanical**:** For bulk mixing, use mechanical positive displacement pumps that are specifically designed for plural component mixing and metering that provides verifiable accuracy. The mixing equipment should have a static mixing wand, meters that are calibrated and verifiable reporting mechanisms in place.

Placement
Broadcast Overlay: Apply Z-Deck using ¼"-3/8" notched squeegees, verifying the application rate as shown Ensure that the application of the Z-Deck binder is applied at a uniform rate and coverage. Broadcast the overlay aggregate either by hand or approved mechanical means until surface refusal of the aggregate course. The aggregate should be dry, sound, angular with a MOHS hardness of >7 and meet FHWA/DOT overlay aggregate requirements. The aggregate should be kept clean and dry, with a moisture content <.2% by weight. Remove excess aggregate from the first course as soon as the surface is cured enough to retain the aggregate during clean-up operations. Immediately apply the second course of epoxy at the specified rates. Allow the final course to cure at the recommended time, remove excess aggregate prior to reestablishing traffic.

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DIRECTIONS FOR USE: High Friction Surface Treatment

Substrate Preparation

Asphalt Surfaces

Clean asphalt pavement surfaces exhibiting excessive dirt, loose aggregate, debris, and deleterious material using a mechanical sweeper. Air wash using a minimum of 180 cfm of clean and dry compressed air, all surfaces to remove all dust, debris, and deleterious material. Maintain the tip of the air lance within 12 inches of the surface. For applications on new asphalt pavements a mandatory 45 day cure period shall take place prior to the installation of the HFST.

Concrete Surfaces

Clean concrete pavement surfaces by shot blasting and air wash. Shot blast all surfaces to remove all curing compounds, loosely bonded mortar, surface carbonation, and deleterious material. The prepared surface shall comply with the International Concrete Repair Institute (ICRI) standard for surface roughness CSP 5. After shot blasting, air wash, with a minimum of 180 cfm of clean and dry compressed air, all surfaces to remove all dust, debris, and deleterious material. Maintain the tip of the air lance within 12 inches of the surface.

Binder Application

Proportion and mix the Binder Resin System to the correct ratio 1:1 by volume (+/- 2% by volume). The Binder Resin System shall be applied at a uniform thickness of 50-65 mils (2.96 to 2.54 square yards per gallon) onto a prepared pavement surface as required by specification. Coverage rate is based upon expected variances in the surface profile of the existing pavement. Operations should proceed in a manner that will not allow the Binder Resin System to separate, cure, dry, be exposed, or otherwise harden in such a way as to impair retention and bonding of the aggregate. Contractor equipment and traffic is not permitted on the HFST during the curing period.

Aggregate Application

The aggregate material must be properly embedded into the Binder Resin System. The placement of this material does not require any compaction. The bauxite aggregate is broadcast to “refusal” Application rates should be 14#-20# per square yard. Aggregate shall completely cover the “wet” Binder Resin System to achieve a uniform surface. During the placement of the aggregate, by mechanical means, the aggregate will be dropped in a manner to not displace the wet Binder Resin System. When placing in multiple lifts, ensure that the aggregate used is the same calcined bauxite material as the final riding surface. It is the responsibility of the installers to ensure proper embedment of the bauxite aggregate, immediately cover any wet spots of excess binder resin with aggregate prior to the gelling of the Binder Resin System to ensure proper skid resistance and macro texture depth. Remove the excess aggregate by sweeping before opening to traffic. Excess aggregate can be reused if it is clean, dry, free from foreign matter, and meets gradation requirements. Allow material to cure prior to removing excess aggregate and opening to traffic.

Epoxy Mortar

Preparation**:** Prepare repair area as required. The area should be clean, dry with all unbonded concrete removed. The substrate should be abrasive blasted. Prime prepared substrate with mixed Z-Deck mixed resin. While primer is still tacky, apply epoxy mortar by trowel and hand screed. Trowell surface taking care to seal edges and provide a uniform, smooth surface. Broadcast traction aggregate into surface as a final step.

Mixing Mortar**:** Proportion equal parts by volume of component ‘A’ and ‘B’ (1:1 Ratio) into clean pail. Mix thoroughly for 3 min. with paddle on low-speed (400–600 rpm) drill until uniformly blended. Mix only that quantity that can be used within pot life. To prepare epoxy mortar - Slowly add 3 parts by loose volume of oven-dried sand to 1 part of mixed Z-Deck until uniform in consistency.

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LIMITATIONS

- For professional use only
- Do not thin or reduce
- Minimum substrate and ambient temperature 50 °F (4 °C) and rising. Substrate must maintain a temperature over 50F or meet minimum cure requirements as stated herein.
- Z-Deck
- For on grade, split-slab and unvented metal pan deck, please consult ZIIS Technical Service regarding moisture limitations.
- Minimum age of concrete before application is 21–28 days depending upon curing and drying conditions.
- Do not use on exterior slab on grade.

HEALTH & SAFETY

Safety: Use OSHA-approved personal protective equipment (PPE), including safety glasses, gloves and confined space equipment/ procedures if applicable. Avoid skin contact; do not ingest. See SDS for complete safety precautions. For professional use only.

FIRST AID

Eye Contact: Immediately flush with large amounts of water. Seek medical attention.
Inhalation: Move to fresh air if symptoms occur. If breathing is difficult, seek medical attention.
Ingestion: Seek medical attention immediately.
Skin Contact: Wipe off contaminated area and wash with soap and water immediately.

MANUFACTURING

Products are manufactured by ZIIS (Utah Foam Products Inc.) in the U.S.A. under strict quality assurance practices at our Salt Lake City, UT plant.

WARRANTY & DISCLAIMER

ZIIS, (Utah Foam Products Inc.) warrants its products to be free from manufacturing defects and that products meet the published characteristics when tested in accordance with ASTM and ZIIS standards. No other warranties by ZIIS (Utah Foam Products Inc.) are expressed or implied, including no warranty of merchantability or fitness for a particular purpose. ZIIS will not be liable for damages of any sort resulting from any claimed breach of warranty. ZIIS' liability under this warranty is limited to replacement of material or refund of sales price of the material. There are no warranties on any product that has exceeded the "shelf life" or "expiration date" printed on the package label.