DURO-CRETE UW

High performance, pre-packaged, concrete repair mortar for underwater applications. Duro-Crete UW is a rapid setting, cementitious repair mortar containing hydraulic cements, well graded, natural, fine aggregate and other carefully selected components for underwater concrete repair applications.

FEATURES & BENEFITS

- Rapid setting for use underwater.
- Improved early age strength development required for underwater applications.
- Excellent resistance to freeze-thaw cycling.
- All KING products are manufactured using ISO 9001:2008 Certified Processes.

USES

Partial depth rehabilitation of pilings, seawalls, water mains, dams, bridges, swimming pools or other underwater surfaces.

PROCEDURES

Surface Preparation:

All surfaces to be in contact with Duro-Crete UW must be free from dust, oil, grease or any other foreign substances that may interfere with the bond of the material. Remove all delaminated or unsound concrete providing a roughened surface. Above water line, the perimeter of the repair area should be sawcut a minimum of 6 mm (¼ inch). Chisel below water line. Clean the area to be repaired with potable water, leaving the concrete saturated but free of standing water (SSD). Place Duro-Crete UW at a minimum thickness of 6 mm (¼ inch) and a maximum thickness of 38 mm (1½ inches).

Mixing:

Place 75% of required potable water into mixer and slowly introduce entire bag of Duro-Crete UW. Add balance of required water slowly while mixer is running, not exceeding maximum recommended volume of water. **Maximum recommended volume of water is 4.15 litres (1.1 US gallon) per25 kg (55 lb.)bag.** Continue mixing until material has obtained a consistent homogeneous mix to a maximum of 1 minute.

Material has a very short working time. Do not mix more material than can be placed within 5 minutes.

Placing:

For underwater applications, form into tight balls and place firmly with a trowel into repair area without delay. Under normal conditions material can be finished immediately after placement. Above water line, apply Duro-Crete UW to prepared surface (SSD). Place material uniformly and consolidate by forcing against the edge of the repair area and continue placing material towards the centre.

Curing:

Curing is essential to optimize the physical properties of Duro-Crete UW and minimize plastic shrinkage. Duro-Crete UW will self-cure underwater. Above water line, it should be cured immediately after material has reached initial set in accordance with ACI 308 “Guide to Curing Concrete”. Continuously moist cure for a minimum period of 7 days. Alternatively, moist cure for a minimum period of 24 hours and apply a curing compound that complies with ASTM C 309. Curing is particularly critical in rapid moisture loss conditions such as high temperatures, high winds and low humidity.

TECHNICAL DATA

The following data is representative of typical values achievable under laboratory conditions. Results in the field may vary.

FLOW TABLE		
	ASTM C 1437	> 100%
WORKING TIME*		
		5 minutes
SET TIME		
	ASTM C 191	
	METHOD A	
	Initial	30 minutes
	Final	45 minutes
WET DENSITY		
	ASTM C 138	2165 kg/m^3 (135 lb./ft^3)
COMPRESSIVE STRENGTH		
	ASTM C 109	
	4 Hour	5 MPa (725 psi)
	8 Hour	10 MPa (1450 psi)
	1 Day	15 MPa (2175 psi)
	3 Day	30 MPa (4350 psi)
	7 Day	35 MPa (5075 psi)
	28 Day	40 MPa (5800 psi)
BOND STRENGTH BY SLANT SHEAR		
	ASTM C 882	
	28 Day	10 MPa (1450 psi)
FLEXURAL STRENGTH		
	ASTM C 348	
	28 Day	10 MPa (1450 psi)
MODULUS OF ELASTICITY		
	ASTM C 469	21.9 GPa (3.16 x 10^6 psi)
HARDENED HEIGHT CHANGE		
	ASTM C 1090	
	28 Day	0.08%
SPLITTING TENSILE STRENGTH		
	ASTN C 496	2.8 MPa (400 psi)
ABSORPTION		
	ASTM C 642	13.5%

KING

Mixing Strength With Satisfaction

DURO-CRETE UW

RAPID CHLORIDE PENETRATION RESISTANCE

ASTM C 1202	480 Coulombs (Very low chloride ion penetrability)

FREEZE-THAW RESISTANCE

ASTM C 666	102% (Excellent durability factor)

DE-ICING/SALT-SCALING RESISTANCE

ASTM C 672	0.34 kg/m^2 (0.07 lb./ft^2)

YIELD

25 kg (55 lb.) bag contains approximately 0.0134 m^3 (0.47 ft^3).

PACKAGING

Duro-Crete UW is normally packaged in 25 kg (55 lb.) triple lined bags and polywrapped on wooden pallets. All KING products can be custom packaged to suit specific job requirements.

STORAGE AND SHELF LIFE

Material should be stored in a dry covered area protected from the elements. Unopened bags have a shelf life of 12 months.

SAFETY PROCEDURES

Duro-Crete UW contains hydraulic cements. Normal safety-wear such as rubber gloves, dust mask and safety glasses used to handle conventional cement based products should be worn. Material Safety Data Sheets are available upon request.

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