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UNIPAK™

Fast Curing Polyester Resin Mortar

Unipak mortar is a rapid-set, high strength bedding mortar designed to prevent bedding failure, and is suitable for all UK BS EN 124-2 applications.

It can be used on its own or with UniForm chamber extension units which are made from the same two part polyester resin material (a proven material used in highway construction) which sets to form a highly durable, homogenous structure

The resin product avoids many of the problems associated with cement based mortar and allows rapid road opening as it cures in as little as 25 minutes. Operatives simply mix both parts, giving a consistent and repeatable result removing issues of performance loss due to operator judgement or personal mix preferences.

The mortar has a very low slump factor, compared with other mortars, giving excellent support to ironwork in an uncured condition. Its inherent low notch sensitivity means it resists cracking which might be caused by any sharp or angular ironwork.

Unipak has a unique colour so that it can be easily identified and comes in three tub sizes (6.5, 12.5 and 25Kg), suitable for fixing small surface boxes up to largest of covers, reducing waste to a minimum.

The system comprises of two components:

- ▶ Fast curing resin-based mortar to replace traditional poor performance cement mortar.
- ▶ Multi-sized adjustment units, replacing ad-hoc packing methods with bricks, wood or other unsuitable materials.

KEY ATTRIBUTES

- ✓ Simple installation process using conventional tools
- ✓ High slump resistance mortar
- ✓ Rapid curing time (as little as 30 minutes)
- ✓ Unique colour for inspectors identification
- ✓ Exceeds requirements of CD 534 (formerly HA 104/09)
- ✓ High performance, suitable for all BS EN 124-2 applications

AVAILABLE ACCESSORIES

- ▶ UniForm adjustment units

UNIPAK RANGE

STOCK CODE	DESCRIPTION
YPCR/U6.5	6.5Kg tub of Unipak mortar
YPCR/U12.5	12.5Kg tub of Unipak mortar
YPCR/U25	25Kg tub of Unipak mortar

TECHINICAL SPECIFICATION

PRODUCT INFORMATION	
Form	Granular
Colour	Salmon
Hazard information	IRRITANT - Polyester Resin. Consult Safety Datasheet before use
Cleaning	Clean mixing paddle immediately after mixing mortar by rotating paddle in a dry granular substance
Packaging	25Kg, 12.5Kg & 6.5Kg tubs
Storage	Store unopened containers in a cool, dry location, away from extremes of temperature
Shelf life	9 months in unopened manufacturers containers

APPLICATION INFORMATION	
Mix ratio	1:1 Liquid:Solid as packaged, no part mixing permitted
Application temperature	1°C to 30°C
Working time	15 minutes @ 20°C
Setting time	20 - 25 minutes
Time to traffic	Vehicle traffic - withing 1 hour (depending on site conditions)
Bed thickness	10 - 50mm
Coverage	1 25kg pack covers approximately 1m2 @ 10mm
Density	2200Kg/m ³
Shrinkage	<0.1%
Adhesion Strenght	> 3 MPa to concrete
Slump Characteristics	100mm (non slump)
Mechanical Mixing	Yes

TIME	TENSILE STRENGTH	COMPRESIVE STRENGTH	FLEXURAL STRENGTH	NOTCH SENSITIVITY
1 hour	9 N/mm ²	60.7 N/mm ²	22.3 N/mm ²	8.8 N/mm ²
2 hours	10 N/mm ²	70.7 N/mm ²	n/a	9.4 N/mm ²
3 hours	n/a	n/a	26.1 N/mm ²	9.5 N/mm ²
24 hours	n/a	n/a	n/a	n/a
28 days	13 N/mm ²	87.3 N/mm ²	n/a	n/a

DIRECTIONS FOR CORRECT USE

PREPARATION

The substrate should be DRY, SOUND and CLEAN, i.e. free from contaminants, debris and dust which may interfere with the adhesion between the mortar and substrate.

MIXING

Remove resin tin and bag of filler/activator from tub. Empty contents of the tin into the tub and slowly add the filler/activator while mixing thoroughly with a slow speed drill and paddle. Always mix in the ratio of one full bag with one full tin. Two or more packs may be mixed at the same time, but only mix enough material which can be applied within 5-10min. Do NOT post mix, vary from 1:1 ratio, wet-up after mixing or re-use once opened.

APPLICATION

Do not apply in wet conditions. Apply the mortar in beds, each of 5-50mm thickness, within 5 minutes of mixing to allow time for adjustment. If used, interleave mortar beds between UniForm adjustment units. The final bedding layer should be typically 10-15mm thicker than required to allow for access cover frame levelling adjustments. Place the frame onto the mortar bed and tamp to the required level. Any mortar disturbed during fitment should be re-fixed into position with any extruded mortar removed from the chamber side of the installation. Apply a final UniPak bed of 10-15mm thickness on top of the frame flange, making sure that it intimately mixes with the mortar that surrounds the frame and extrudes through it. Allow the bedding to set firm, then perform the hammer test. Hit the mortar with a hammer, and if an indent is left, the material needs more time to cure. Once fully cured, backfill and apply a suitable wearing course or pavement, using materials conforming to New Roads & Streetworks Act 1991 Code of Practice. If UniForm wedges aren't used UniPak mortar can receive traffic after 1 hour - if UniForm wedges are used then the installation can be trafficked immediately, subject to the backfill and wearing course cure periods. UniForm Wedges should be used to effect frame levelling in circumstances where elevated temperatures preclude conventional frame tamping from occurring. All works should be carried out in line with advice and Codes of Practice described in DoT HD27, Highways England CD 534 (formerly HA104/9), DMRB, MCHW SERIES 500, NRA MCDRW Vol.1 section 507.1.

RESTRICTIONS

Speed of set and strength development will be affected by site and substrate temperature. Warm conditions will accelerate setting and cold conditions will slow setting. Protect freshly placed material from freezing until set. In adverse weather conditions, UniPak mortar should not be used if the temperature is 3°C on a falling temperature or below 3°C on a rising thermometer.

STORAGE

Store in unopened manufacturer's container in cool dry conditions. Filler/powder: Store in dry places at temperatures between 5°C and 25°C. Avoid frost. Resin/liquid: Flammable/combustible. Keep away from oxidisers, heat and flames. Store in tightly closed, original containers in dry, cool and well ventilated places.

NOTE

▶ *Department of Transport Design Manual for Roads and Bridges Volume 7 Section 2 Part 2 HD 27/04 states:*
"3.11 Mortars for bedding iron work such as manhole cover frames during repairs may be trafficked when the strength is expected to be 20 N/mm². For rapid construction, this strength should be achieved within 2 hours."

▶ *Department of Transport Design Manual for Roads and Bridges Volume 7 Section 2 Part 5 HA 104/09 states:*
"6.1 Chamber tops and gully tops should be bedded upon bedding materials with the following properties:

- a. The material should be non-shrink. Use of other materials may be considered in consultation with the Overseeing Organisation;
- b. The material should have a minimum workable life of 15 minutes;
- c. The compressive strength of the material should exceed 30N/mm² in 3 hours;
- d. The tensile strength of the material should exceed 5N/mm² in 3 hours;"

▶ *National Roads Authority Manual of Contract Documents for Roadworks Volume 1 Clause 507.17 states:*
"17 Frames for chamber covers and gratings shall be set in cement mortar designation (i) complying with clause 2404 or a proprietary quick-setting mortar of equivalent strength. Covers and gratings located within the carriageway, hardshoulder or hardstrip shall be set in mortar with the following properties: with the following properties:

- a. The material shall be non-shrink;
- b. The material shall have a minimum workable life of 15 minutes;
- c. The compressive strength of the material shall exceed 30N/mm² in 3 hours;
- d. The tensile strength of the material shall exceed 5N/mm² in 3 hours."

