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REAL MIX 001

Multi-purpose admixture for cementitious systems – waterproofs and improves mortars; bonding agent

Description of Product
Real mix 001 is a styrene-butadiene, co-polymer latex specifically designed for use with cement compositions. It is used in mortar and concretes as an admixture to increase resistance to water penetration, improve abrasion resistance and durability. It is used with cement as a reliable water-resistant bonding agent.

Primary Uses
- Concrete repair
- Floor screeds and toppings
- External rendering
- Waterproofing and tanking
- Fixing slip bricks and tiles
- Corrosion protection of steel

Typical Applications Concrete repair:
Spalled concrete, repairing floors, beams and pre-cast slabs.

Floor screeds and toppings:
Abrasion resistant and non-dusting floors, underlay for special finishes, mild chemical and effluent-resistant floors.

External rendering:
Waterproof, weatherproof and frost-resistant render.

Waterproofing and tanking:
Basements, lift pits, inspection pits, water towers, liquid tanks, effluent tanks and swimming pools.

Other typical applications:
Bedding tiles, fixing or re-fixing slip bricks and bonding new concrete to old.

Advantages
- Earlier hardening
- Improved flexibility
- Greatly reduced shrinkage
- Prevents bleeding
- Lower water-cement ratio
- Increased durability and toughness
- High resistance to water penetration
- Good abrasion resistance
- Good frost resistance and resistance to salt permeation
- Good resistance to many chemicals and to mineral oil
- Excellent adhesion to steel and concrete
- Adheres well to brick, glass, asphalt, wood, expanded polystyrene and most building materials
- Prolonged corrosion protection
- Proven performance
- Similar thermal expansion and modulus properties to concrete (unlike resin mortars and primers)
- Non-toxic; can be used with potable water
- More economical than epoxy or polyester resin mortar

Action
The use of REAL MIX 001 synthetic latex in cement-based slurries and mortars compensates for many deficiencies in the mixes without detracting from their inherent strength and properties. Real mix 001 has been developed specifically for use with Portland cements. As ordinary mortar dries out, voids are left which make it permeable and weaker. When Real mix 001 is added, the REAL MIX 001 particles bind together to form continuous films and strands; these stitch the opposite sides of the voids together and block up the spaces, thus increasing strength and resistance

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to water penetration. Real mix 001, combined with cement, produces an excellent adhesive; each component compliments the properties of the other in this respect.

Composition
Real mix 001 is a milky, white liquid, produced from styrene and butadiene by high pressure emulsion polymerisation. The latex consists of microscopic particles of synthetic rubber dispersed in an aqueous solution. Real mix 001 modified mixes may be slightly darker than corresponding unmodified mixes.

Packaging
Real mix 001 is available in 25ltr and 210ltr containers.

Properties
Unless otherwise stated, typical properties are based on a 3:1 sand/cement mix in which 10ltr of Real mix 001 per 50kg of Type I OPC cement has been incorporated.

Compressive strength:	40N/mm^2 dependent on cement used and workability
Tensile strength:	Up to 6.5N/mm² dependent on cement used and workability
Flexural strength:	Up to 13N/mm² dependent on cement used and workability
Freeze thaw resistance:	Excellent
Water vapour permeability:	Less than 4gm/m²/24hour, through an 11mm thick test piece*
Adhesion:	Excellent to concrete, steel, brick, glass, etc.
Co-efficient of thermal expansion:	-20°C to +20°C: 12.8 x 10^{-6} -20°C to +60°C: 12.9 x 10^{-6}
Chemical resistance:	Resists mild acids, alkalis, sulphates, chlorides, urine, dung, lactic acid, sugar, etc.
Shrinkage during cure:	0.01% to 0.02%
Resistance to water under pressure - 30m head:	Excellent - no water through a 15mm thick test piece*
indicated strengths are typical; variation in cement used and workability can give increased strengths	
Real mix 001 added at 10ltr/50kg cement	

Standards
Approved by Water Research Council for use with potable water.

Directions for Use Surface preparation:
Surfaces to which Real mix 001 is to be applied should be clean, sound and free of deleterious substances.
Remove all laitance, oil, grease, mould oil or curing compound from concrete surfaces using wire brush, scabbler or other equipment as appropriate. Ensure that reinforcing steel is clean and free from grease or oil; remove scale and rust. When repairing spalled or damaged concrete, ensure that the concrete has been cut back to sound material.

Bonding slurry:
Wet down absorbent surfaces, such as concrete, brick, stone, etc., ensuring that they are saturated but free of surface water. Prepare a bonding slurry of 1½ to 2 parts cement to 1 part Real mix 001, mixed to a lump-free, creamy, consistency. Using a stiff brush, work the bonding slurry well into the damp surface, ensuring that no pinholes are visible. Do not apply bonding slurry at a thickness in excess of 2mm.

If a second coat is necessary, it must be applied after the first coat is touch dry. The second coat must be applied at right angles to the first to ensure complete coverage.
(Approximately 20ltr of Real mix 001 mixed with 50kg of OPC Type I cement will give a creamy slurry, which will cover 20 square metres of substrate dependent on surface texture and thickness applied.)

Materials for REAL MIX 001 Modified Mixes
Sand:
Sand should be sharp washed, well graded and free from excessive fines.
For general use, select a BS 882 C&M (previously Zone 2) sand. For rendering, select a sand complying with BS 1199 Tabl.

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Cement:
Real mix 001 is compatible with all types of OPC, sulphate resisting Types II and V. For use with other cements, contact ARK,s Technical Services Department for advice.

Water:
The strong plasticising action of Real mix 001 greatly reduces the w/c ratio for any given workability.

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Standard dose is 5ltr per 50kg of cement. For more demanding situations, such as exposure to chemicals or wear, 10ltr per 50kg of cement is recommended.

Mixing:
Mixing should preferably be carried out in an efficient concrete mixer – where available a pan type mixer, such as a Creteangle, is recommended. Hand mixing is only permissible when the total weight of the mix is less than 25kg.

Charge the mixer with the required quantity of sand and cement and pre-mix for approximately 1 minute. Add the Real mix 001 and mix for 2 minutes only, to avoid excessive air-entrapment.

Finally, without delay, add the water slowly until the required consistency is achieved. Owing to the strong plasticising properties of Real mix 001, rapid thinning can occur - avoid adding excessive water!

Guide to Application Rendering to vertical surfaces:
Apply the bonding slurry to the prepared surface; and then apply the Real mix 001 render into the wet bonding slurry.
Apply Real mix 001 modified mortars in coats at a maximum thickness of 6mm per coat. Greater thickness can lead to slumping. Several coats can be applied in fairly rapid succession, usually within 15 to 30 minutes of the previous coat.

Close the surface using a wooden float or steel trowel.

Another method is to let the first coat of render dry overnight and apply another slurry coat before applying the second coat of render. For further details, refer to the "Guidelines and Recommendations using Real mix 001".

Screeds and toppings, applied to horizontal surfaces:
Screeds, patches, etc., based on Real mix 001 modified cements, can be laid to any thickness from 60mm down to 6mm minimum.
After mixing, the Real mix 001 modified mix should be placed over the still wet bonding slurry, well compacted and struck off to level. It may then be trowelled to the required finish, using a wooden float or steel trowel.

Note: Whenever screeds are being laid over existing concrete surfaces, it is important that expansion joints in the sub-floor are carried through the Real mix 001 modified mix. This can be done by fitting a temporary timber batten wrapped in polythene sheet into the joint.

Curing
Correct curing of Real mix 001 modified mixes is important.

Moisture cure for 24 hours and then allow to dry out slowly. (Note that initial curing is necessary to provide good curing conditions for the hydration of the Portland cement, then the latex mortar must be allowed to dry out to permit the latex particles to join together to form the continuous films and strands.)

Watchpoints
1. Never apply Real mix modified mixes or concrete to a bonding slurry that has been allowed to dry out.
2. Always use fresh, cool cement and sharp, clean, well-graded aggregate, free of excessive fines.

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3. Keep mixing time to a minimum – see recommendations
4. Until the user becomes familiar with its workability,the appearance of a Real mix 001 modified mix is deceptive; when of correct consistency, it may appear to be too dry.However, it will be found that it can be compacted and trowelled satisfactorily. Avoid using excessive water.
5. Trowelling should proceed with the work. Do not over-trowel and avoid re-trowelling. Protect from too rapid drying out prior to trowelling.

Equipment Care
All tools should be cleaned with water immediately after use. If delayed, use of soap and coarse wire wool may help. Solvents such as white spirit can be used to remove partially hardened mortar.

Dosage Rate
For all normal use, the standard dose of 5ltr of Real mix 001 per 50kg cement is adequate. For extreme conditions and/or when adhesion, waterproofing, water vapour resistance or

chemical resistance are critical, the dosage should be increased to 10ltr of Real mix 001 per 50kg cement. For this higher dosage, the extra water addition required is low and, therefore, use of wet aggregate may result in excessive workability.

Compatibility
Real mix 001 is specifically designed for use with Portland cements. It is also compatible with sulphate resisting cement, Types II and V. Lime (more than 10% cement weight), air-entraining agents and masonry cement must not be used in conjunction with Real mix 001.

Effects of Over Dosage
The recommended levels should not be exceeded. Gross over dosage at an acceptable workability is not likely, but will result in an increase of the polymer properties to the detriment of the compressive strength.

Specification Clause
All cementitious mixes stated shall be modified with Real mix 001, styrene butadiene, copolymer latex, manufactured by ARK , or similar approved, to the following specification:

Composition:	A milky, white styrene butadiene copolymer latex, specifically made for use with Portland cement
pH:	10.5
Specific gravity:	1.01
Mean particle size:	0.17 micron
Butadiene content:	40% by weight of REAL MIX 001 polymer

The material shall be used in bonding slurries at the rate of approximately 1 volume of Real mix 001 to 1½ to 2 volumes of OPC cement and in cementitious mixes at the rate of 5 or 10ltr per 50kg cement, as recommended in the manufacturer's literature.

Shelf Life

Up to 12 months if stored in unopened containers according to manufacturer’s instructions.

Safety Precautions
Avoid contact with eyes and prolonged contact with skin. During application, always wear gloves and appropriate clothing to minimise contact. In case of contact with eyes, mmediatelyi flush with plenty of water for at least 15 minutes. Should skin contact occur, wash immediately with soap and water. Seek the advice of a physician should symptoms persist.