



MAXPATCH® -MPC EXPRESS

MAGNESIUM PHOSPHATE CEMENT (MPC) MORTAR FOR URGENT REPAIRS OR USES AT LOW TEMPERATURES



DESCRIPTION

MAXPATCH® MPC EXPRESS is a magnesium phosphate cement (MPC) mortar for urgent repairs of concrete pavements and/or uses at exceptionally low temperatures. Its rapid setting and hardening (15 minutes) allow it to open to road traffic in 30-60 minutes and to be applied at exceptionally low temperatures, i.e. from -20°C to 35°C.

APPLICATION FIELDS

- Urgent repairs of concrete floor exposed to heavy wheel traffic in highways, bridge decks, parking areas, cold rooms, warehouses, access ramps, etc. where rapid open to traffic is required
- Urgent repairs of concrete floors at temperature below 5°C, where conventional cement repair mortars do not allow their application.
- Repair and patching of bridge decks, airport runways, roads in high mountain areas and other outdoor areas in exceptionally low temperature weather conditions.
- Concrete floor repair, filling of voids and defects prior to levelling surface by application of self-levelling mortars

ADVANTAGES

- Fast setting: rapid return to service of repaired area after 30 min and 1 h for pedestrian and wheeled traffic, respectively.
- Suitable for exceptionally low temperature uses: -20°C to 30°C.
- High early mechanical strengths for the first hours of application.
- Good adhesion to concrete. No primer required.
- Less shrinkage and hydraulic cracking process compared to Portland cement mortars.
- Indoor/outdoor use, weather, and UV resistant.

- Chemically resistant to freeze-thaw salts, chlorides from the marine environment and sulphates.
- Chloride-free composition.
- Easy to apply, i.e. only water for mixing, one-component product.
- Solvent-free, non-flammable and odourless. Suitable for indoor repairs with poor ventilation. Environmentally friendly.

APPLICATION INSTRUCTIONS

Surface preparation

Remove all disintegrated and unsound concrete until achieving a structurally resistant substrate. Square cut or undercut the perimeter of the area to be patched to a depth of at least 20 mm. Avoid small or sharp angles in the edge of the patch. The concrete substrate must have a Concrete Surface Profile CSP 6 or higher, in accordance with the classification of the ICRI (*International Concrete Repair Institute*).

Surface must be dry and thoroughly cleaned, free of dust, dirt, coatings, efflorescence, oil, grease, or any other foreign material that could affect to adhesion of the mortar. Use water blasting or equivalent mechanical means to clean concrete and provide a porous and open texture surface.

Mixing

A 25 kg bag of **MAXPATCH® MPC EXPRESS** is mixed with 3,5 to 4,0 litres (14-16 %) of clean water, depending on the ambient conditions and the consistency required.

Pour the required mixing water in a clean container and then slowly add **MAXPATCH® MPC EXPRESS** mixing by a slow speed electric drill (400-600 rpm) fitted with a disc mixer until achieving a smooth, lump-free, and homogeneous mortar. Mix only the amount of **MAXPATCH® MPC EXPRESS** that can be placed in 10 minutes. After this time, mortar will have started its setting and will no longer be workable.

Application

For an optimum adhesion prepare a bonding slurry by mixing 5 parts of **MAXPATCH® MPC EXPRESS** and 1 part of water, until achieving a homogeneous consistency without any lumps. Apply the bonding slurry by brush **MAXBRUSH®** or broom **MAXBROOM®**.

Patches from 5 to 50 mm thick:

When bonding slurry begins to lose brightness but is still fresh, start application of **MAXPATCH® MPC EXPRESS** by trowel with a maximum thickness per layer up to 50 mm. Conveniently finish the last coat, e.g. with a non-slip finish with a brush, before the hardening of **MAXPATCH® MPC EXPRESS** begins.

Applications with thicknesses greater than 50 mm in a single stage. Add 8 kg of clean silica sand, free of fine particle fillers, and with maximum size up to 10 mm (**DRIZORO SILICA 1020**), per each 25 kg of **MAXPATCH® MPC EXPRESS**. Mix dry both compounds and then, add this solid compound over the water, while it is mechanically mixed with a mixing disc at low revolutions (400-600 rpm) until achieve a workable consistency mortar but avoiding any excess which may cause bleeding or segregation, considering that the addition of sand reduces the water demand per sack. When the bonding slurry becomes matt, begin the application of the mortar as mentioned above.

Application conditions

The working temperature range is from -20°C to 30°C. For temperatures below 0°C, warm water can be used in mixing to speed up the setting. At temperatures above +20°C, chilly water can be used to slightly extend the workability time. Do not apply on frozen surfaces.

For applications at hot temperatures, low relative humidity, and/or windy conditions, i.e. summertime, surface must be wet thoroughly with plenty of water prior to application, keep product stored under shadow and use cold water for mixing.

Curing

With hot temperature (>25°C), windy conditions, and/or direct sunlight, protect immediately from quick drying by spraying a fine mist of water or by covering it with polyethylene sheeting and damp burlaps or by spraying the **MAXCURE®** curing liquid onto its surface. Do not use wet curing methods.

Cleaning

All mixing and application tools must be cleaned immediately with water after use. Once product hardens, this can only be removed by mechanical means.

CONSUMPTION

Estimated consumption of **MAXPATCH® MPC EXPRESS** is 2,0 kg/m² per mm thickness. A 25 kg bag fills a volume of about 12,5 litres.

Patches deeper than 50 mm thick: adding 8 kg of **DRIZORO® SILICA 1020** per 25 kg bag of **MAXPATCH® MPC EXPRESS** fills a volume of about 16 litres, i.e. about 1,4 kg/m² per mm thickness of **MAXPATCH® MPC EXPRESS** and .7 kg/m² per mm thickness of **DRIZORO® SILICA 1020**.

These figures are for guidance only and may vary depending on porosity, texture, substrate conditions and application method. Perform a preliminary test on-site to ascertain the total consumption exactly.

IMPORTANT INDICATIONS

- Do not manually mix, always use mechanical means. Do not add cement, admixtures, or any other non-specified compounds.
- Use the recommended amounts of mixing water.
- Observe the recommended consumptions and thickness per layer.
- Do not mix more material than can be applied in 10 minutes. Do not use leftovers from previous mixes.
- Do not provide a wet curing.
- Do not apply on surface previously treated with water-repellent agents, bituminous materials, plasters, paints, and/or metal supports.
- For other uses not specified on this Technical Bulletin or further information, consult the Technical Department.

PACKAGING

MAXPATCH® MPC EXPRESS is supplied in 25 kg bags or metal drums. It is available in grey colour.

STORAGE

Twelve months in bag and eighteen months in drum respectively, in its unopened original packaging. Store in a cool, dry, and covered place, protected from moisture, freezing and direct sunlight, at temperatures above 5°C.

SAFETY AND HEALTH

MAXPATCH® MPC EXPRESS is not a toxic product but is an abrasive compound. Avoid direct

contact with skin and eyes, and breathing dust. Use rubber gloves and safety goggles during application. In case of skin contact, wash affected area with soap and water. In case of eye contact, rinse immediately thoroughly with clean water but do not rub. If the irritation persists, seek medical assistance.

Consult the Material Safety Data Sheet for **MAXPATCH® MPC EXPRESS**

Disposal of the product and its packaging should be conducted according to the current official regulations, and it is the responsibility of the final user of the product.

TECHNICAL DATA

Product characteristics	
<i>CE Marking, EN 1504-3</i>	
Description. Magnesium phosphate cement (MPC) mortar for non-structural repair of concrete.	
Uses: Building and civil engineering works	
Principles / Methods. Concrete restoration by applying mortar by hand (Principle 3-CR / 3.1)	
General appearance and colour	Drack grey powder
Density of powder, (g/cm ³)	1,3 ± 0,10
Mixing water, (% by weight)	14 ± 1
Application and curing conditions	
Application temperature range for substrate and ambient, (°C)	From -20°C to +30°C
Setting time at 20 °C & 50 % R.H., (min)	
- Initial	5
- Final	10
Curing time for road traffic at 20 °C & 50 % R.H., (h)	2
Cured product characteristics	
Density for cured and dry mortar, (g/cm ³)	1,90 ± 0,10
Requirement for repair products, EN 1504-5 (Class)	Class R3 / Structural
Compressive strength, EN 12190 (N/mm ²)	39,4
Chloride ion content, EN 1015-17 (% by weight)	<0,01
Adhesive bond on concrete at 28 days, EN 1542 (MPa)	1,7
Carbonation resistance, EN 13295, d _k (mm). Control concrete 4 mm	1,8
Elastic modulus, EN 13412 (GPa)	23,3
Thermal compatibility	
- Part 1: Freeze-thaw, EN 13687-1 (MPa)	1,5
- Part 2: Thunder shower, EN 13687-2 (MPa)	1,6
- Part 4: Dry cycling, EN 13687-4 (MPa)	1,6
Capillary absorption, EN 13057 (kg/m ² ·h ^{0,5})	0,1
Reaction to fire, EN 13501-1 (Euroclass)	A1
Thickness / Consumption*	
Thickness per layer as pure product, (mm)	20-50
Consumption per layer as pure product, (kg/m ² ·mm)	2,0

* These figures are for guidance only and may vary depending on porosity, texture, substrate conditions and application method. Perform a preliminary test on-site to ascertain the total consumption exactly under jobsite conditions

GUARANTEE

The information contained in this leaflet is based on our experience and technical knowledge, obtained through laboratory testing and from bibliographic material. **DRIZORO®**, **S.A.U.** reserves the right to introduce changes without prior notice. Any use of this data beyond the purposes expressly specified in the leaflet will not be the Company's responsibility unless authorised by us. We shall not accept responsibility exceeding the value of the purchased product. The data shown on consumptions, measurement and yields are for guidance only and based on our experience. These data are subject to variation due to the specific atmospheric and jobsite conditions so reasonable variations from the data may be experienced. To know the real data, a test on the jobsite must be done, and it will be conducted under the client responsibility. We shall not accept responsibility exceeding the value of the purchased product. For any other doubt, consult our Technical Department. This version of bulletin replaces the previous one.



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