



Technical data sheet (TDS)

Concretum® Q-CON

Rapid-hardening repair concrete (drymix)

EN 1504-3
certification
pending

1. Description

1.1. Product

Concretum® Q-CON is a rapid-hardening repair concrete based on pure cement with a maximum aggregate size of 16 mm. The dry material, comprising binder and aggregate, is mixed with water and is available in bags.

1.2. Application

Concretum® Q-CON is used for local renovations and repairs of concrete pavements in traffic surface construction, which demand rapid hardening. The concrete is used in particular for motorways and airport pavements. The consistency of the fresh concrete is set for these applications and cannot be varied as desired, because the maximum water quantity must be maintained.

1.3. Advantages

- Rapid hardening
- Long open time
- Simple mixing
- Simple handling
- Very good compatibility with existing concrete surfaces
- Low temperature dependency
- High durability: low shrinkage, low heat of hydration
- No impact from moisture on areas adjoining the construction
- Purely cementitious: does not contain either polymers or epoxy or methacrylate resins

2. Product data

2.1. Hardening, drying, hardened concrete properties

The values stated in this section are indicative. The actual values depend on the project and situation-specific marginal conditions.

Concretum® Q-CON	Temperature-dependent (5 – 30 °C) **
Time from addition of water until compressive strength of 16 – 20 N/mm ² is achieved. *	120 – 150 Min.
Time from addition of water until compressive strength of 35 N/mm ² is achieved.	180 – 210 Min.
Time until moisture content falls below 4 CM-%	150 – 180 Min.
Open time	45 – 75 Min.
* usual compressive strength for approval of transport surfaces in road and airport construction ** The applicable temperature takes into account material, base and surrounding area in the following ratios: 2/4 material, 1/4 base, 1/4 surrounding area. The temperature must not fall below 5 °C. For lower temperatures, a Concretum engineer must be consulted.	

Over the course of the hardening, Concretum® Q-CON achieves the following hardened concrete properties:

- Compressive strength: > 75 N/mm² after 28 days
- Flexural strength: > 7.5 N/mm² after 28 days
- Young's Modulus: > 30,000 N/mm²
- Specific density: ~ 2,350 kg/m³

2.2. Other properties

Colour:	Cement grey
Delivery:	Pallet, with 24 paper bags of 40 kg (total 960 kg) or 42 paper bags of 25 kg (total 1050 kg)
Shelf life:	In the unopened original packaging, and complying with the storage conditions, 6 months from the production date.
Storage conditions:	Store in the unopened original container, protected against weather. It must be ensured, for example, that condensation does not form under the covering films and standing water is not absorbed from below.
Chemical basis:	Combination of powdery additives, hydraulic binder and aggregate sizes up to 16 mm.
Consistency:	Homogeneous
Bulk density:	Approx. 1.8 kg/l

Water-soluble chloride content: $\leq 0.1 \text{ M-\%}$

3. Working instructions

3.1. Preparations

The surfaces of the patches must be moistened (washed) with water before filling with Concretum® Q-CON. The excess water remaining in the patch must be removed (blown out). The base must be clean, dust and grease free and stable. The bond with the existing concrete typically depends on the roughness, among other things. The minimum surface roughness should be at least 4 mm, the average surface roughness should be at least 8 mm.

The fresh mortar temperature must be above 5 °C.

3.2. Mixing

Concretum® Q-CON is added to a mixing container together with drinking water (not recycling or residual water). The stated water quantity must not be exceeded. With a high-powered double-shaft hand mixer or a high-powered force mixer, mix until a homogeneous, lump-free and even consistency is achieved. The mixing time must be at least 120 seconds. When using mixers with a low mixing power the mixing time must be extended (to approx. 3 - 5 minutes). It is recommended that the precise yield is determined by performing a preliminary test. Only full container units (bags) should be mixed.

3.3. Mixing ratios

Mixing ratios and yields	Added water per 25kg/40 kg paper bag	Yield
25 kg paper bag of Concretum® Q-CON	1.8 – 2.1 litres	approx. 11 litres
40 kg paper bag of Concretum® Q-CON	2.8 – 3.4 litres	approx. 18 litres

3.4. Pouring

The minimum pouring thickness is 5 cm and the maximum pouring volume is 500 litres. The maximum expansion of the poured surface must be restricted to 25 to 30 times the smallest dimension of the repair. The poured thickness must be kept homogeneous over the entire area. For larger sections, relief cuts have to be made, which depend on the existing marginal conditions.

The pouring has to be performed directly after mixing. The pouring, including compacting and surface finish, have to be completed within the open time of approx. 45 to 75 minutes after the addition of the water.

It is not possible to pour different mixed batches wet-in-wet. Cold joints should be vertical if possible. These joints then have to be cut and filled with jointing material.

Post-treatment has to be performed especially in direct sunlight, strong wind and rainy weather. The surface has to be protected against loss of moisture and leaching. This can be done with corresponding covers or by spraying a post-treatment agent (curing compound). However, it must be ensured

that any subsequent layers are not affected, including their adhesion. If post-treatment is omitted, this may lead to the formation of fine cracks on the surface. These cracks can facilitate the penetration of contaminants and have a negative impact on durability.

3.5. Further information

The general rules of good concrete production according to the applicable standards and other regulations in respect of measures for ensuring the optimum working and post-treatment of concrete apply.

4. Special considerations

The mixing and processing of Concretum® Q-CON are always subject to the general rules of good concrete production according to the relevant standards and other regulations with regard to the measures to ensure optimal processing and post-treatment of the placed mortar.

5. Measurement values

All measurement values stated in this technical datasheet are based on internal laboratory tests by Concretum Construction Science AG. The effective values may deviate from the stated measurement values due to external circumstances which Concretum Construction Science AG cannot control.

6. Country-specific data

The data and measurement values of the Concretum Construction Science AG products may vary depending on the country of use. The respective local technical data sheets apply. Upon request, Concretum Construction Science AG will provide information about which data and measurement values apply in individual countries.

7. Important safety information

When working with Concretum® Q-CON, the same recommendations as for cement apply with regard to handling and personal safety equipment. The powder is an alkali and an irritant. For detailed information, please consult the current safety data sheet at www.concretum.com.

8. Documentation of defects

Concretum Construction Science AG products have the specific properties conclusively named in this technical data sheet.

To safeguard the quality of the product properties, Concretum Construction Science AG retains a sample batch of each production batch for a period of 24 months.

If Concretum Construction Science AG products are reported by a client as defective, the product properties are checked exclusively by testing the corresponding batch sample using an internal testing procedure.

9. Legal information

This datasheet forms a component of any contract between Concretum Construction Science AG and the customer. The product properties are described conclusively in the above section 'Other properties'. The products must be used according to the provisions of Concretum Construction Science AG and this data sheet.

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