



Anchoring and Mounting

ESPANSOL ANCOR

Pre-mixed, fluid, self-levelling cementitious mortar for anchoring and precise grouting works.



- Fluid
- Extremely high resistance
- Limited expansion
- Non-shrinking



APPLICATION AREAS

Precision anchorage and placement:

- Foundation and support plates.
- Heavy machinery such as turbines, generators, compressors, mill wheels, presses and rolling mills.
- Equipment for the textile, paper-making, printing and petro-chemical industries.
- Crane foundations and overhead crane rails.
- Steel and reinforced concrete columns.
- Pins, cramps and tie rods.
- Metal structures subject to high dynamic stresses.

FEATURES

Espansol Ancor is super-fluid, non shrinking, pre-mixed mortar with a very high initial and final mechanical resistance. It is especially suitable for anchorage and placement applications. Highly fluid with controlled expansion ensure that this mortar can fill all gaps perfectly and has a high adhesive power. Although the mortar is fluid, its components are strongly cohesive and do not tend to separate. It does not contain metallic aggregates,

chloride aggregates or aluminium cements. Espansol Ancor conforms to the specifications of EN 1504-6 for mortars for anchoring reinforcing steel. It can also be used as a R4 type hydraulic mortar (PCC) for the structural repair of concrete structures as per the standard EN 1504-3.

When used as a structural repair mortar as per EN 1504-3, the field of application of Espansol Ancor conforms to the principles 3 (Concrete restoration), 4 (Structural strengthening) and 7 (Preserving or restoring passivity) of EN 1504-9 using the following methods 3.1 (Applying mortar by hand), 4.4 (Adding mortar or concrete) and 7.1 (Increasing cover to reinforcement with additional cementitious mortar or concrete).

INSTRUCTIONS FOR USE

Preparation

The substrate must be clean and well keyed. Provide wide enough filling and escape openings. The day before casting, wet the substrate until the water stops soaking in.

Mixing the product

Mix Espansol Ancor with approx. 13-14 % water (approx. 3,25 – 3,50 litres for a 25 kg bag) to the consistency required. Do not exceed the recommended maximum quantity. Pour approximately $\frac{3}{4}$ of the total amount of water into the cement mixer. Add Espansol Ancor pouring it in uniformly and continuously. Mix until smooth and free of lumps. Then add the rest of the water until you obtain the required consistency. Pot life is approximately 30 minutes at 20 °C. Higher temperatures reduce pot life. Wet the surface again until it is saturated. Allow the excess water to evaporate or remove it with a sponge.

Application

Pour the mixture into the forms smoothly and from one side only so that the air can escape from the other side. Fill narrow or awkward gaps with the aid of iron rods or bars. Do not vibrate. For cavities larger than 5 cm, dilute the Espansol Ancor with 50 % by weight of fine gravel (3 – 7 mm) i.e. 2 parts Espansol Ancor to 1 part fine gravel. In practical terms this means 3 buckets of fine gravel for every 100 kg (equal to four 25 kg bags) of Espansol Ancor. This changes some of the characteristics of the product such as the amount of water required for the mix which is reduced from approximately 13 % of the product to approximately 10 % of the product when diluted with gravel. Mechanical performance in terms of compression resistance is reduced by approximately 10 % to somewhere in the order of 65 MPa. To prevent cracking caused by too rapid evaporation of the water during hot weather and to promote expansion to compensate for shrinkage, keep the exposed parts of the casting wet for at least 48 hours and protect from wind and direct sunlight. For surface finishing, follow the general rules of good practice for the application of cementitious mortars. As with all cement-based products, do not apply at temperatures below +5 °C.

Cleaning

The tools used for application can be cleaned with water before the mortar hardens; afterwards, cleaning can only be done by mechanical removal.

TECHNICAL SPECIFICATIONS

PARAMETER	EN 1504-3 / EN 1504-6 REQUIREMENT	VALUE
MEASURED ON POWDER PRODUCT		
Consistency		powder
Grain size (EN 12192-1)		0-2 mm
Water soluble chlorides (EN 1015-17)	≤ 0,05 %	< 0,01 %
MEASURED ON FRESH MIX		
Mixing water		13-14%
Density of mix when fresh (EN 1015-6)		2,220 kg/l
Mix consistency		fluid
Setting times (EN 196-3) start		approx. 5 hours
Setting times (EN 196-3) end		approx. 10 hours

Mix pot life (EN 13395)		> 30 minutes
Free expansion in plastic phase (UNI 8996)		0,5%
Impeded expansion (UNI 8147): at 24 hours		0,0130%
Impeded expansion (UNI 8147): at 28 days		0,0250%
Application temperature		+5 °C to +30 °C
MEASURED ON HARDENED PRODUCT		
Operating temperature		-20 °C to +90 °C
Compression strength at 28 days (EN 12190)	≥ 45 MPa	≥ 80 MPa
Bending strength at 28 days (EN 121909)		> 9 Mpa
Compression modulus of elasticity (EN 13412)	≥ 20 GPa	> 30 Gpa
Adhesion by pull-off test (EN 15429)	≥ 2,0 MPa	> 2,0 Mpa
Carbonation resistance (EN 132959)	dK ≤ control concrete	dK = 0 mm (no CO ₂ penetration)
Impeded shrinkage/expansion (EN 13687-4)	Adhesion after test: ≥ 2,0 MPa	> 3,0 Mpa
Thermal compatibility (freeze-thaw cycles with salts) (EN 13687-4)	Adhesion after 50 cycles: ≥ 2,0 MPa	> 2,5 MPa
Capillary absorption (EN 13057)	≤ 0,5 kg/(m ² *h ^{0,5})	0,15 kg/(m ² *h ^{0,5})
Pull-out (EN 1881)	Movement at 75 kN: ≤ 0,6 mm	< 0,4 mm
Fire reaction class (EN 13501-1)	Value declared by the producer	Class A1
Classification (EN 1504-3)		R4 PCC

Color	Grey
Packaging	bag
Packaging size	25 kg
Pallet	50 bags

CONSUMPTION

Consumption is approximately 2100 kg/m³.

STORAGE

Store in a dry, covered place. Unopened in its original bags, the product can be stored for at least 12 months. Protect from moisture.

CERTIFICATIONS

Classified as an anchoring mortar for steel reinforcement, EN 1504-6. Product classified as R4 PCC according to EN 1504-3.

Additional certifications and tests performed:

- The product can be applied for exposures XC 1-4, XF 1-4, XW 1-2, XD 1-3, XS 1-3, XM 1, XA 1-2 and X0 according to EN 13396 "Products and systems for the protection and repair of concrete structures – Test methods – Measurement of chloride ion penetration".
- High resistance to freezing-thawing salts – detection by CDF method
- High resistance to chloride penetration – detection by chloride migration coefficient test (test according to EN 13396)
- Complies with water resistance under pressure according to DIN 12390-8
- Factory production testing according to DIN EN 1504-3
- Company certification according to DIN EN ISO 9001: 2015
- Meets the requirements of building material class A1 (non-combustible) according to Decision 2000/605 / EG of the European Commission of 26 September 2000 (published in the Official Journal L258)
- Cements: according to DIN EN 197-1
- Aggregates: according to DIN EN 12620

LEGEND OF CLASSIFICATION ACCORDING TO EN 1504-3

CC	Hydraulic mortars and hydraulic concretes
PCC	Polymer hydraulic cement mortars or concretes
PC	Polymer binder-based mortar or concrete with calibrated aggregates
P	Reactive polymer binders
R1	Non-structural mortars with compressive strength ≥ 10 Mpa
R2	Non-structural mortars with compressive strength ≥ 15 Mpa
R3	Structural mortars with compressive strength ≥ 25 Mpa
R4	Structural mortars with compressive strength ≥ 45 Mpa

The information contained in this document is reported on the basis of our experience and knowledge; therefore, any recommendations and suggestions made are without any guarantee and must be verified before using the product by those who intend to use it, who assume all responsibility that may result from its use since the conditions of use are not under our direct control. In case of doubt, it is always advisable to make preliminary tests and/or ask for the intervention of our technicians. Torggler reserves the right to modify, replace and/or delete the items, as well as to change the product data in this document without prior notice; in this case the indications given here may no longer be valid. Always refer to the latest version of the data sheet, available at www.torggler.com. Version 27.01.2021.