

EMACO[®] Fast Tixo

Fast setting and hardening, plastic bedding and repair mortar

Product description

EMACO Fast Tixo is a pre-bagged, ready-to-use, fast setting and hardening thixotropic repair and bedding mortar. The product, with specially selected fine aggregates, a special cement binder system and active chemical substances, provides rapid strength build-up – even at sub-zero temperatures – improved durability and un-matched, low drying shrinkage.

Fields of application

EMACO Fast Tixo is typically used for the thixotropic bedding or repair of:

- Small to medium size manhole frames
- Curb stones
- Pavement stones
- Horizontal patch repair areas
- Inclined patching areas

EMACO Fast Tixo is intended for:

- Optimizing traffic management.
- Both internal and external use.
- Use in cold conditions or cold store rooms
- Applications under the most difficult jobsite conditions.
- Where very short traffic disruption periods are required.
- Improving public and worker safety in any kind of traffic works

Features and benefits

- Ultra rapid strength build-up
- EMACO Fast Tixo can be opened to all traffic in just 2 hours
- Excellent application properties:
 - 10 to 100 mm in repair applications
 - 25 to 150 mm in bedding applications
 - higher thickness possible with the addition of maximum 30% clean, well sized gravel
- Can be used at sub-zero temperatures as low as -10°C
- Very high early and final strengths
- Excellent adhesion.

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| BASF Construction Chemicals Belgium NV Nijverheidsweg 89, B-3945 Ham 09 0749 - CPD BC2-563-0013-0002-001 | |
| EN 1504-3 Fast setting, thixotropic traffic repair mortar | |
| Compressive strength | Class R4 |
| Chloride ion content | ≤ 0,05 % |
| Adhesion | ≥ 2,0 MPa |
| Durability - Freeze/Thaw | ≥ 2,0 MPa |
| Carbonation resistance | Pass |
| Skid resistance | Class III |
| Capillary absorption | ≤ 0,5 kg/m ² x h ^{-0,5} |
| Fire resistance | A1 |
| Dangerous substances | Complies with 5.4 |

- Excellent durability
- Shrinkage ≤ 0.3 mm/m
- Crack-free hardening
- Excellent freeze-thaw resistance
- Very good reinforcement protection due to very low water absorption and good carbonation resistance
- Excellent skid resistance, even in wet conditions
- Very high resistance to hydrocarbons
- Cement based, no dangerous substances

Technical data

| Property | Unit | Values | | | | | | | | | | | | | | | | | | |
|--|---------------------------------------|---|----------------------|---------------------|---------------------|----|---|---|----|----|----|----|----|----|----|----|----|----|----|----|
| Maximum aggregate size | mm | 1.6 | | | | | | | | | | | | | | | | | | |
| Density (mixture) | g/cm ³ | Approx. 2.20 | | | | | | | | | | | | | | | | | | |
| Mixing water demand | Litres | Approx. 3.4 (min. 3.1 to max. 3.6) | | | | | | | | | | | | | | | | | | |
| Pot life of mixed material | Minutes | 20 to 30 | | | | | | | | | | | | | | | | | | |
| Final setting time | Minutes | 30 to 40 | | | | | | | | | | | | | | | | | | |
| Application temperature | °C | From -10 to +30 (substrates defrosted) | | | | | | | | | | | | | | | | | | |
| Application thickness - repair mortar - bedding mortar | mm | 10 to 100 25 to 150 | | | | | | | | | | | | | | | | | | |
| Open to traffic (at 20°C) - light traffic - all (heavy) traffic | hours | 1 2 | | | | | | | | | | | | | | | | | | |
| Compressive strength (EN 12190) - after 2 hours - after 4 hours - after 1 day - after 7 days - after 28 days | N/mm ² | <table border="1"> <thead> <tr> <th>+20°C ⁽¹⁾</th> <th>+5°C ⁽²⁾</th> <th>-5°C ⁽³⁾</th> </tr> </thead> <tbody> <tr> <td>31</td> <td>3</td> <td>8</td> </tr> <tr> <td>48</td> <td>15</td> <td>18</td> </tr> <tr> <td>62</td> <td>63</td> <td>55</td> </tr> <tr> <td>80</td> <td>83</td> <td>80</td> </tr> <tr> <td>93</td> <td>86</td> <td>86</td> </tr> </tbody> </table> <p>(1) curing; water and powder temperature +20°C (2) curing; water and powder temperature +5°C (3) curing -5°C; water and powder temperature +20°C</p> | +20°C ⁽¹⁾ | +5°C ⁽²⁾ | -5°C ⁽³⁾ | 31 | 3 | 8 | 48 | 15 | 18 | 62 | 63 | 55 | 80 | 83 | 80 | 93 | 86 | 86 |
| +20°C ⁽¹⁾ | +5°C ⁽²⁾ | -5°C ⁽³⁾ | | | | | | | | | | | | | | | | | | |
| 31 | 3 | 8 | | | | | | | | | | | | | | | | | | |
| 48 | 15 | 18 | | | | | | | | | | | | | | | | | | |
| 62 | 63 | 55 | | | | | | | | | | | | | | | | | | |
| 80 | 83 | 80 | | | | | | | | | | | | | | | | | | |
| 93 | 86 | 86 | | | | | | | | | | | | | | | | | | |
| Adhesion strength (EN 1542) | N/mm ² | ≥ 3.0 | | | | | | | | | | | | | | | | | | |
| Chloride ion content (EN 1015-17) | % | ≤ 0.05 | | | | | | | | | | | | | | | | | | |
| Carbonation resistance(13295) | < dk reference concrete | Pass | | | | | | | | | | | | | | | | | | |
| Freeze-thaw resistance (EN 13687-1) (adhesion strength after 50 cycles with de-icing salt) | N/mm ² | ≥ 3.0 | | | | | | | | | | | | | | | | | | |
| Skid resistance (EN 13036-4) | wet tested | Class III | | | | | | | | | | | | | | | | | | |
| Capillary water absorption | kg.m ⁻² .h ^{-0.5} | ≤ 0.1 | | | | | | | | | | | | | | | | | | |
| Flexural strength (EN 196-1) - after 1 day - after 7 days - after 28 days | N/mm ² | ≥ 7 ≥ 8 ≥ 10 | | | | | | | | | | | | | | | | | | |
| Drying shrinkage (EN12617-4) after 28 days | mm/m | ≤ 0.300 | | | | | | | | | | | | | | | | | | |
| Crack tendency – Coutinho ring | | No cracking after 180 days | | | | | | | | | | | | | | | | | | |
| Pull out strength of steel rebar (Rilem-CEB-FIP RC6-78) | N/mm ² | > 20 | | | | | | | | | | | | | | | | | | |
| Modulus of elasticity (EN 13412) | N/mm ² | 35000 | | | | | | | | | | | | | | | | | | |
| Hardening times are measured at 20°C and 65% R.H. Higher temperatures and/or higher R.H. can shorten these times, and vice versa. The technical data provided are the outcome of statistical results and do not represent guaranteed minima. | | | | | | | | | | | | | | | | | | | | |

Application method

(a) Surface preparation:

All substrates must be structurally sound, free of laitance and loose particles and clean of oil, grease, rubber skid marks, paint stains and other adhesion impairing contaminants.

The surface should be prepared by shot blasting, high-pressure water jetting or any other suitable mechanical method, to leave a clean and keyed surface.

Leave the circumference of the repair areas with sharp edges.

Cracks and joints should be treated as such, as EMACO Fast Tixo is a rigid material when hardened.

Any exposed reinforcement must be cleaned to a standard Sa 2, prior to the application of EMACO Fast Tixo. Heavily damaged reinforcement, or when rebar sections have decreased below the safety level, need to be replaced for structural reasons. Ensure a 2 cm rebar cover when installing additional reinforcement.

Although EMACO Fast Tixo can be applied at ambient temperatures as low as -10°C, the temperature of the substrate should be minimum > 0°C and maximum +30°C. Frozen substrates need to be defrosted just prior to the application of EMACO Fast Tixo.

Make sure that any metal parts, e.g. reinforcement and manhole frames are defrosted with a temperature above the freezing point.

Try to keep the temperature uniform during application and hardening.

The base concrete should be damp, without free standing water, at the moment of applying EMACO Fast Tixo, in order to prevent premature drying of the concrete-mortar interface.

(b) Mixing:

EMACO Fast Tixo is a ready-to-use product that should only be mixed with clean water to a plastic, thixotropic consistency.

Mixing is preferably done in forced action pan mixers or similar. Small quantities can also be mixed using a slow speed drill and paddle (maximum 400 rpm).

Mix full bags only.

Pour approximately 3.4 litres (3.1 lt – 3.6 lt) of clean water per 25 kg powder in the mixing container. Add EMACO Fast Tixo to the water while mixing for approximately 3 to 4 minutes, until a homogeneous, lump free mixture is obtained.

Do not mix more material as can be applied within the pot life of approximately 20 to 30 minutes at 20°C.

Do not modify EMACO Fast Tixo with any other material.

Only the addition of maximum 30% of clean, well sized gravel is permitted for applications with a thickness over 100 mm.

(c) Application:

EMACO Fast Tixo may be applied at ambient temperatures between -10°C and +30°C.

Concrete substrates and any metal parts coming in contact with EMACO Fast Tixo need to be defrosted.

As bedding mortar: place EMACO Fast Tixo onto the pre-dampened substrate and overfill to allow for compaction. Gently lower the manhole frame, curb or pavement stone into the fresh mortar and set to the required level.

Make sure to apply enough material onto the individual bedding area before lowering the manhole frame or curb stone. Punctual applications of EMACO Fast Tixo, and under-filling after previous levelling of manhole frames is not allowed.

As repair mortar: In order to ensure optimum adhesion, a slurry coat of EMACO Fast Tixo is brush applied onto the pre-dampened substrate. Alternatively a bonding slurry of EMACO® Nanocrete AP may be applied. Place EMACO Fast Tixo in its plastic consistency onto the still wet slurry coat, scratching the product into the roughness of the substrate. Apply further material up to the required thickness.

(d) Curing

EMACO Fast Tixo is basically self-curing. Wet curing is not advised.

Under hot or windy environmental conditions, Masterkure® curing compounds may be used. When working at sub-zero temperatures, cover EMACO Fast Tixo with insulation materials or dry cloths until sufficiently hardened, preferably 24 hours or until EMACO Fast Tixo is to be opened for traffic.

Do not apply EMACO Fast Tixo if the temperature is expected to drop below -10°C during application or within 24 hours.

Cleaning of tools

Clean equipment and any spillages with water before the mortar has hardened.

Once hardened, the material can only be removed mechanically.

Consumption

Approximately 1.95 kg powder/dm³ of mixed material.

Packaging

EMACO Fast Tixo is supplied in 25 kg bags.
The product is available in a grey colour.

Storage

Store in dry warehouse conditions. Shelf life under these conditions is 12 months in unopened original bags.

Notes

- When applying EMACO Fast Tixo at cold or sub-zero temperatures, we advise to use warm mixing water in order not to delay the hardening of the mortar too much.
- Products that could negatively affect the properties of EMACO Fast Tixo must not be added.
- For applications over 100 mm, 7.5 kg of clean gravel (4-8 mm or 8-16 mm depending on the thickness) may be added to 25 kg of EMACO Fast Tixo powder.
- Do not wet cure the material. Prevent from rain.

Health and safety

Usual preventive measures for the handling of chemical products should be observed when using this product, for example do not eat or drink while working and wash hands when taking a break or when the job is completed.

EMACO Fast Tixo contains cement. Avoid contact with eyes and prolonged contact with skin. In case of contact with eyes, immediately flush with plenty of water for at least 15 minutes. Call a physician. In case of contact with skin, wash skin thoroughly. Specific safety information referring to the handling and transport of this product can be found in the Material Safety Data Sheet.

Disposal of product should be carried out according to the local legislation in force. Responsibility for this lies with the final owner of the product.

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NOTE:

Similar to all the other recommendations and technical information, this technical data sheet serves only as a description of the product characteristics, mode of use and applications. The data and information given are based on our technical knowledge obtained in the bibliography, laboratory tests and in practice. The data on consumption and dosage contained in this data sheet are based on our own experience and are therefore subject to variations due to different work conditions. Real consumption and dosage should be determined on the job by means of prior tests and are the liability of the client. Our Technical Service is at your disposal for any additional advice.

BASF Construction Chemicals reserves the right to modify the composition of the products provided these continue to comply with the characteristics described in the data sheet.

Other applications of the product not covered by those indicated shall not be our liability. In the case of defects in the manufacturing quality of our products we provide a guarantee, any additional claims being exempt and our liability being only to return the value of the goods supplied. The possible reservations with respect to patents or third party rights should be noted.

Edition 03/09

The present data sheet becomes null and void on issuance of a new edition.