



Concrete Cosmetics

Application Handbook

EXPERTISE
CONCRETE COSMETICS



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Introduction

It is quite apparent from recent and current construction projects that the trend towards exposed concrete is continuing unabated. However, this requires a uniform overall appearance of the concrete surfaces – something that can really only be achieved through professional corrective intervention. This realisation has led to the advent of fair-faced concrete cosmetics, an art reliant on high-quality product systems and specialist applicators.

As a market leader in this field, MC has been instrumental in setting quality standards for others to follow. A programme of continuous research and development combined with 60 years of practical experience has given rise to a diverse portfolio of multicoloured cosmetic solutions for exposed concrete, with retouch and concrete protection products complementing the range.

Through targeted and coordinated measures, visual blemishes can be effectively eliminated with MC's fair-faced concrete cosmetics, enabling achievement of a coherent overall exposed and architectural concrete appearance. And this too can be further enhanced aesthetically with appropriate retouching.

Time has seen specialist contractors develop their own application techniques using a range of different tools and coating structures.

The purpose of this handbook is to provide application tips and suggestions with regard to the systems and tools that can be employed in the achievement of professional, high-quality results in fair-faced concrete cosmetics.

Concrete cosmetic systems overview

MC cosmetic fillers serve to transform a defective exposed concrete surface into a first-class fair-faced finish.

Concrete surfaces with flaws such as spalling, chipped and broken edges, gravel pockets, porosities, blowholes, colour differences or soiling can be transformed into impressive fair-faced interiors and exteriors – simply, quickly and with the utmost efficiency.

MC's unique portfolio of cosmetic fillers comprises the two product lines Emcefix and Nafuquick, each offering a different set of application properties and colours.

Common to both are their outstanding performance characteristics:

- Optimal adhesion to the concrete substrate
- Elegant ease and smoothness of application
- Suitability for application even under extreme weather conditions when alloyed with MC's polymer additives

The entire colour range of the fine fillers is intermiscible, enabling practically any shade of grey to be recreated. And non-standard colours can also be mixed and matched through the use of special additives.

Each MC cosmetic filler is supported by General Application Advices and a Technical Data Sheet for reference. Mandatory Safety Data Sheets have also been issued for every product indicated.

If you have any questions relating to our products and systems, or specific application issues, just give us a call – we will be delighted to help!

Nafuquick

Universal and thermal fillers
for simple, fast application.

For standard concrete

Universal filler

Nafuquick Uni

Fine universal filler

Nafuquick

For warm concrete

Thermal filler

Nafuquick HT

Fine thermal filler

Nafuquick HT fine

Emcefix

Fair-faced concrete cosmetics
for special requirements and exceptional surface finishes

1

Bond coat

Emcefix Haftbrücke

2

Coarse filler

Emcefix Spachtel G lang · Emcefix Spachtel G rapid · Emcefix Spachtel G ultra

3

Fine filler / Super-fine filler

Emcefix Spachtel F lang · Emcefix Spachtel F rapid · Emcefix Spachtel F extra fein

Nafuquick

FOR STANDARD CONCRETE

Universal filler

Product

Nafuquick uni

Usage profile

- Max. grain size 0.7 mm
- Large scale fillings and small breakouts
- Filling of rigid butt joints between precast concrete elements
- Filling of deep blowholes

Fine universal filler

Nafuquick

- Max. grain size 0.35 mm
- Large scale fillings
- Filling of porosities and blowholes
- Levelling of formwork offsets

FOR HOT CONCRETE

Thermal filler

Product

Nafuquick HT

Usage profile

- Max. grain size 0.35 mm
- For substrate temperatures up to + 70 °C
- Large scale fillings
- Filling of blowholes

Fine thermal filler

Nafuquick HT fine

- Max. grain size 0.25 mm
- For substrate temperatures up to + 70 °C
- Large scale fillings
- Filling of porosities and blowholes

Max. layer thickness / Consumption	Application time	Colour
Single-layer: from 3 to 20 mm Consumption: approx. 1.4 kg/m ² /mm	approx. 30 min/ 20 °C	Cement grey Concrete grey Medium grey



Single-layer: from 1 to 6 mm Consumption: approx. 1.4 kg/m ² /mm	approx. 30 min/ 20 °C	Light grey Grey Concrete grey Medium grey
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Max. layer thickness / Consumption	Application time	Colour
Single-layer: from 1 to 10 mm Consumption: approx. 1.25 kg/m ² /mm	approx. 30 min/ 20 °C	Concrete grey

Single-layer: from 1 to 8 mm Consumption: approx. 1.25 kg/m ² /mm	approx. 30 min/ 20 °C	Concrete grey
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Emcefix

FOR FAIR-FACED CONCRETE	Product	Usage profile*
Bond coat	Emcefix-Haftbrücke	<ul style="list-style-type: none"> • Rigid adhesive bond • Bond coat for coarse filler on cement-based substrates
Coarse filler, slow setting	Emcefix-Spachtel G lang	<ul style="list-style-type: none"> • Small scale fillings • Coarse fillings up to 25 mm thick • Broken edges, gravel pockets, etc.
Coarse filler, fast setting	Emcefix-Spachtel G rapid	<ul style="list-style-type: none"> • Small scale fillings • Coarse fillings up to 25 mm thick • Broken edges, gravel pockets, etc.
Coarse filler fibre-reinforced with integral adhesion promoter	Emcefix-Spachtel G ultra	<ul style="list-style-type: none"> • Small and large scale fillings • Coarse fillings up to 40 mm thick • Surface levelling




*These cosmetic fillers can be used the whole year round. Higher temperatures accelerate, lower temperatures retard the setting time of the freshly applied fillers.

Max. layer thickness / Consumption	Application time	Colour
Consumption: approx. 1.1 kg/m ² /mm	approx. 60 min/ 20 °C	Grey
Single-layer: from 6 to 25 mm Double-layer: up to 50 mm Consumption: approx. 1.8 kg/m ² /mm	approx. 20 min/ 20 °C	Grey
Single-layer: from 6 to 25 mm Double-layer: up to 50 mm Consumption: approx. 1.8 kg/m ² /mm	approx. 7 min/ 20 °C	Grey
Single-layer: from 6 to 40 mm Double-layer: up to 80 mm Consumption: approx. 1.52 kg/m ² /mm	approx. 30 min/ 20 °C	Cement grey

Emcefix

FOR FAIR-FACED CONCRETE	System products	Usage profile*
Fine filler, slow setting	Emcefix-Spachtel F lang	<ul style="list-style-type: none"> • Large scale fillings (porosities, blowholes etc.) • Fine surface finish for high-quality fair-faced concrete
Fine filler, fast setting	Emcefix-Spachtel F rapid	<ul style="list-style-type: none"> • Large scale fillings (porosities, blowholes etc.) • Fine surface finish for high-quality fair-faced concrete
Super-fine filler	Emcefix-Spachtel F extra fein	<ul style="list-style-type: none"> • Large scale fillings (porosities, blowholes etc.) • Super fine surface finish for fair-faced concrete

*These cosmetic fillers can be used the whole year round. Higher temperatures accelerate, lower temperatures retard the setting time of the freshly applied fillers.

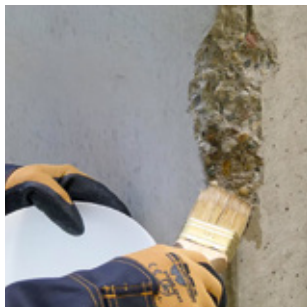
Max. layer thickness / Consumption	Application time	Colour
Single-layer: from 1 to 6 mm Consumption: approx. 1.45 kg/m ² /mm	approx. 30 min/ 20 °C	White White grey Stone grey Grey Concrete grey Medium grey Anthracite 
Single-layer: from 1 to 6 mm Consumption: approx. 1.45 kg/m ² /mm	approx. 10 min/ 20 °C	Grey Concrete grey Medium grey 
Single-layer: from 0.5 to 3 mm Consumption: approx. 1.5 kg/m ² /mm	approx. 30 min/ 20 °C	Light grey Pebble grey Concrete grey Medium grey 

Substrate



Substrate preparation

The substrate must be frost-free, clean, solid, load-bearing and devoid of substances that would impair adhesion. Remove all signs of cement laitance.



Prewetting

The substrate must be pre-wetted so that the surface is matt-damp and still absorbent.

Mixing



Making up

Add the concrete cosmetic filler into clean water. Whether mixing small or large batches, both manual and mechanical mixing is possible.

In case of mechanical mixing a slow-running mixer, e.g. Collomix X06HF with a DLX agitator, is an ideal solution. It is important that the filler is mixed to a homogeneous, lump-free, stiff-plastic consistency.

TIP

We recommend the wearing of protective goggles and gloves for all concrete cosmetics works.

Coarse filling



Bond coat

The ready made-up Emcefix-Haftbrücke bond coat should be carefully brushed into the pre-wetted and still matt-damp substrate. Any kind of broad, well-bristled brush will do.



Coarse filling

Apply the required thickness of Emcefix-Spachtel G fresh-in-fresh to the matt-damp Emcefix-Haftbrücke bond coat.

TIP

The use of setting accelerators will considerably speed up the rate at which both the bond coat and the filler set.
(see pages 28/29)



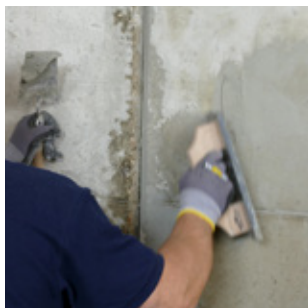
Trimming

The contours of the concrete part can be easily reprofiled by trimming off excess filler in its slightly stiffened state.

Coarse filler product recommendations

- For small scale fillings:
Emcefix-Spachtel G lang/rapid
- For large scale fillings:
Emcefix-Spachtel G ultra

Fine filling



Coloured fair-faced concrete cosmetics

Slightly pre-wet the substrate as described on page 12.

For filling porosities and blowholes, use Emcefix-Spachtel F.

This fine filler is suitable for non-walk-on* concrete surfaces, e.g. wall surfaces, ceiling soffits and similar, both indoors and out.

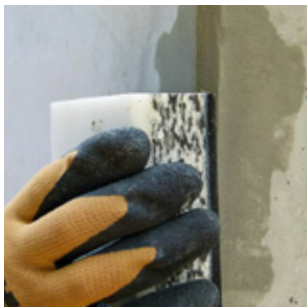
For a super-fine filler finish, use Emcefix-Spachtel F extra fein.

MC-Tool Rubber float is particularly suitable for applying the fine filler in order to finish the concrete surface without excess material and without ridging (see page 36).

*TIP

Use Emcefix-floor in its four colour shades for floor filling applications.

Surface finishing and curing



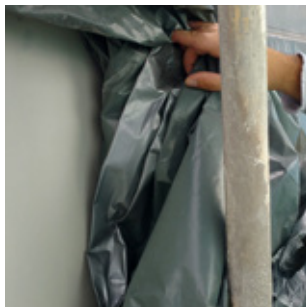
Smoothing

To achieve a fine, even surface, smooth the filler using an MC-Tool Sponge. Both sides of the sponge are suitable for such work.

Use **just a little water** as you rub so as to maintain the colour fastness of the filler and to avoid the formation of a smear film.

TIP

To avoid the occurrence of stress-cracking, we recommend the addition of Repacryl to the water.
Mixing ratio: 1 : 3 (Repacryl : Water)



Curing

To achieve a flawless surface, the filler must be protected in its fresh state both against the effects of precipitation and against drying out too quickly due to exposure to sunlight, wind or rain.

Curing takes 3 days.

Repacryl



Concrete retouching / Concrete glazing

The concrete retouching / concrete glaze can only be started after the fine or superfine filler has dried completely. First, Repacryl (in four mixable colour shades) is prepared in the desired colour shade.

The Repacryl mixture created in this way is then diluted with water in a ratio of 1:1 to 1:4 and processed. The application is carried out by dabbing with MC-Tool Natural Sponge or by rolling.

Spray application is also possible. Suitable for this is the spiral pump BMP 5 with circulation unit from b&m. You can find more information in our equipment planner Repacryl.

TIP

Final reworking step: By adding Emcefix-Spachtel F extra fine into the Repacryl water mixture reduce the gloss level. By grinding lightly you can achieve a uniform concrete finish.

Emcephob / MC-Color Proof



Hydrophobization

Once the retouching film has completely dried, it is recommended that the surface be treated with the hydrophobic agent Emcephob L as a temporary protection measure. This will reduce the absorption capability of the concrete surface.



Impregnation

As an alternative, retouched concrete surfaces can be impregnated with Emcephob Effect Systems. This gives the concrete a higher level of protection while also making the surface open to water vapour diffusion or for example, inhibiting carbonation. Use Emcephob Effect G as a gloss impregnation or Emcephob Effect M as a matt impregnation.

TIP

Make sure the concrete protection coating is applied over entire sections of the surface.

Fair-faced concrete cosmetics



Perfectly matched concrete finishes

The high-quality fine filler Emcefix-Spachtel F is used not only for common fine filling and repairing concrete surfaces, but also and predominantly as a cosmetic enhancer for exposed concrete, for small and large scale works and eliminating colour differences.

Surface finish for super-fine fair-faced concrete

To achieve an even finer surface, use the super-fine filler Emcefix-Spachtel F extra fein.

TIP

For sandy substrates or substrates with insufficient load-bearing capacity, we recommend surface consolidation with MC-Estribond T15. The material may be roller-applied in one or several layers, depending on necessity.



Smoothing

Fine filling is best completed by rubbing with MC-Tool Sponge so as to produce a smoother and higher-grade finish (see page 36).

Concrete retouching and concrete protection

Repacryl serves to further enhance the aesthetic effect of fair-faced concrete cosmetics, creating a truly attractive, vivid exposed surface finish (see page 18).

The retouched surface can also be effectively protected with Emcephob / Emcephob Effect (see page 19).

Reprofiling broken edges



Bond coat and coarse filler

Apply Emcefix-Spachtel G to the matt-damp Emcefix-Haftbrücke bond coat to create a surplus fill. This enables even broken edges (triangular mouldings) to be reprofiled with ease.



Trimming

The contours of the concrete part can be readily restored by trimming off excess filler in its slightly stiffened state.



Fine filling

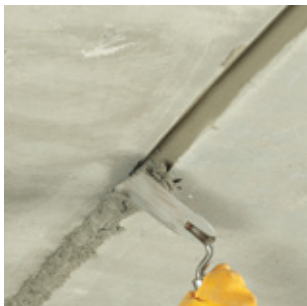
For colour-matching, apply the fine filler Emcefix-Spachtel F / F extra fein to the partially dried coarse filler. To achieve a fine, even surface, smooth the filler using MC-Tool Sponge (see page 16).



TIP

Stiffening fine fillers can also be grinded with a manual sander (100-grit sanding mesh).

Sealing of rigid butt joints between precast concrete components



Joint sealing

Nafuquick uni should be worked into the pre-wetted precast concrete butt joint using a trowel or float up to a thickness of 20 mm, with the excess then being trowelled off while fresh. To achieve wallpaperable butt joints, allow excess material to stiffen.

Trim the excess with a trowel and then rub the joint with a slightly moistened MC-Tool Sponge.

TIP

With Repacryl as a polymer additive into the mixing water, you can temper your concrete filler and improve adhesion to the substrate.

Filling hot concrete



Filling of porosities / blowholes, and large scale fillings

Nafuquick HT / HT fine is applied to the warm-to-hot surface without pre-wetting using a trowel and float as appropriate.

Trim off excess material and smooth with MC-Tool Sponge.

	Usage profile
Polymer additive	Polymer enhancer for MC cosmetic fillers
Repacryl <ul style="list-style-type: none">- Light grey- Agate grey- Pale grey- Concrete grey	<ul style="list-style-type: none">• Filler enhancer• For freshly demoulded and still hot concrete elements• Suitable for application at elevated temperatures and in direct sunlight• Colour-matching of MC cosmetic fillers• Suitable for application at low temperatures• Roller application• As a cosmetic slurry
	Usage profile
Concrete cosmetic retouching	Concrete finishing and colour-matching
Repacryl	<ul style="list-style-type: none">• Retouching and glazing of fair-faced concrete

Recommended ratio

(data refer to
paPBVs by volume / PBV)

- | | | |
|--|---------|----------|
| • Increases filler adhesion and smoothability. | 1 PBV | Repacryl |
| | 1–3 PBV | Water |
| • Ensures optimum water retention to minimise filler burn-off. | 1 PBV | Repacryl |
| | 2 PBV | Water |
| • Reduces the occurrence of stress-cracking | | |
| • Colour light grey – lightens grey shades. | 1 PBV | Repacryl |
| • Colour concrete grey – matches grey shades to the concrete. | 1–3 PBV | Water |
| • Colour pale grey – darkens grey shades. | | |

Repacryl-enhanced fillers can also be applied at 0 °C and dried with a blow-torch in order to prevent the effects of frost on the fresh material.	1 PBV	Repacryl
	2 PBV	Water

Emcefix-Spachtel F can be modified with Repacryl and water to allow the mix to be rolled on like a paint.	1 PBV	Repacryl
	2 PBV	Water

Nafuquick can be mixed with Repacryl and water into a slurriable consistency.	1 PBV	Repacryl
	2 PBV	Water

Recommended ratio

(data refer to
paPBVs by volume / PBV)

Repacryl can be dabbed onto the surface with MC-Tool Natural Sponge or applied to the concrete with a roller.	1 PBV	Repacryl
	1–4 PBV	Water

	Usage profile
Polymer additive	Polymer enhancer for MC cosmetic fillers
Murafan 39	<ul style="list-style-type: none">• Enhancement of MC cosmetic fillers• Provision of a mineral bond coat• Improvement of application properties
	Usage profile
Accelerator	Liquid accelerator for MC cosmetic fillers
MC-Additiv 4 DS	<ul style="list-style-type: none">• For really fast setting of fillers.• No influence on the colour result!
MC-Additiv Speed	<ul style="list-style-type: none">• Liquid accelerator for MC cosmetic fillers
	Usage profile
Waterproofing	Solvent-free hydrophobic agent with high penetration power
Emcephob L	<ul style="list-style-type: none">• Reduces water absorption in the concrete• Reduces efflorescence and soiling of concrete surfaces
	Usage profile
Impregnation	Transparent impregnation
Emcephob Effect G / M	<ul style="list-style-type: none">• Slightly film-forming• Hydrophobic, open to water vapour diffusion• Transparent-glossy / transparent-matt

Recommended ratio

(data refer to parts by volume / PBV)

- Increases filler or bond coat adhesion. 1 PBV Murafan 39
- Increases filler elasticity / flexibility. 2–6 PBV Water

Application at 20 °C

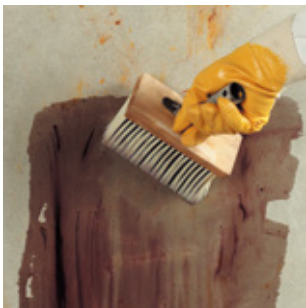
approx. 5 minutes with a mixing ratio of 1:7 (accelerator: water)
depending on ratio, temperature and filler type

approx. 5 minutes with a mixing ratio of 1:15
approx. 10 minutes with a mixing ratio of 1:20
approx. 15 minutes with a mixing ratio of 1:50
(accelerator: water)

- For retouched concrete surfaces
- For fair-faced concrete
- For fair-faced concrete cosmetics

- For exposed concrete with a glossy / matt finish
- For preventive protection
- For interior and exterior surfaces

Chemical cleaning of concrete



Removing rust marks with Donnitil Rust Ex

1. Pre-wet the substrate thoroughly.
2. Brush or spray Donnitil Rust Ex onto the concrete.
3. Important: Allow up to max. 5 minutes for it to take effect!
4. Visual check: Rust marks should turn violet.
5. Rinse off with water.
6. Repeat process as necessary.

In the case of stubborn marks, additional mechanical cleaning with a brush will help.

TIP

Donnitil Rust Ex is a highly effective and extremely odorous rust remover. Make sure that any enclosed spaces are well ventilated.



Removing oil marks with Donnitol Oil Ex

Donnitol Oil Ex is ideal for cleaning concrete surfaces soiled with oil.

1. Apply Donnitol Oil Ex to the affected surface.
2. Allow approx. 10–15 minutes for it to take effect.
3. Rinse with water and additionally scrub the surface with a root brush or scrubber.
4. Repeat the treatment as necessary to remove stubborn stains.

TIP

Please note, however, that old, centimetre-deep oil stains cannot be completely removed from the concrete surface, even with Donnitol Oil Ex.

Chemical cleaning of concrete



Removing efflorescence with Donnitil 3X

1. Pre-wet the substrate.
2. Mix Donnitil 3X to the recommended ratio with water and apply to the affected concrete surface with a brush, broom or paintbrush.
3. Allow approx. 5–10 minutes for it to take effect.
4. Rinse with water and additionally scrub the surface with a root brush or scrubbing brush.
5. Repeat the treatment as necessary to remove stubborn flaws.

NOTE

Donnitil 3X may attack the surfaces of cement-bound building materials.

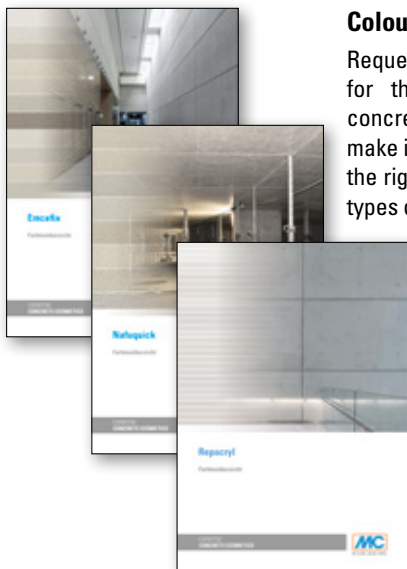
Colour-matching with cosmetic fillers



Unique colour variability

With the high-quality Emcefix and Nafuquick concrete fillers, it is possible to reproduce almost all concrete colours. The variety of the colour palette starts with white, extends to several shades of grey and through to anthracite. Each fine filler is available in different shades and grain sizes, making a total of 22 colours for concrete fillers.

In addition, the colour of the concrete filler can be customised using Repacryl as an additive. As a rule, any shade of grey can be reproduced.



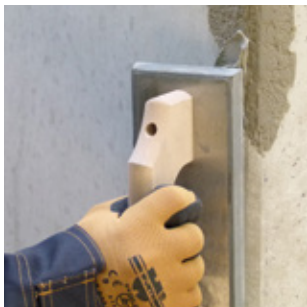
Colour charts

Request the colour overviews for the concrete fillers and concrete glaze today. They will make it easier for you to choose the right colour for the different types of filler!

And MC's expert advisors will be happy to assist you on site in selecting the appropriate filler to transform visual impairments in the concrete into first-class exposed concrete surfaces.

MC's application technology will likewise be at your disposal so that you can see for yourselves where our performance strengths lie. And we will also prepare test surfaces on site for you to examine if required.

MC-Tool range



The rubber float MC-Tool Rubber

MC-Tool Rubber float is particularly suitable for applying MC's fine and super-fine concrete cosmetic fillers – especially when it comes to eliminating porosities and blowholes – enabling concrete surfaces to be upgraded or rehabilitated ridge-free and with all excess material removed.

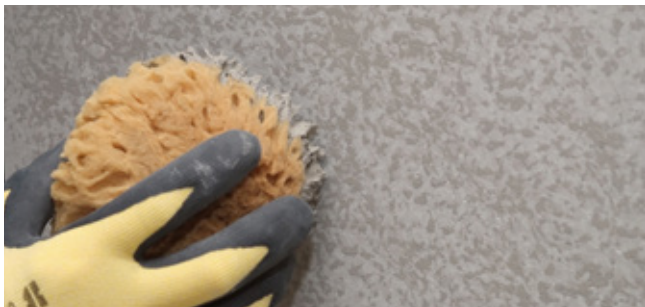


The smoothing sponge MC-Tool Sponge

This concrete cosmetics float comes with two different facings. The sponge-rubber facing (black) facilitates the formation of straight edges and sharp corners, while the softer foam-rubber facing (white) is designed primarily for the final smoothing of skim coats made with MC's fine fillers.

TIP

Do not directly wet the filler being smoothed.
The black sponge-rubber side of MC-Tool Sponge should be lightly moistened to rub down the filler surface.



Made from natural material

MC-Tool Natural Sponge

MC-Tool Natural Sponge is used to dab on Repacryl when retouching concrete surfaces.

MC-Tool range



The all-in-one tool set

MC-Tool CF Set

The complete set comprises:

- Trowel, float
- MC-Tool Rubber
- MC-Tool Sponge
- MC-Tool Natural Sponge
- Manual sander including mesh and pad
- Protective gloves
- Safety goggles



TECTOR
GUIDE

MC-Tool CF Set

- | | | | |
|-----------------------------|---------------------------------------|------------------------------|------------------------------|
| MC-1 Trowel
MC-2 | MC-10 Outdoor scraper
MC-11 | MC-19 Trowel
MC-20 | MC-28 Trowel
MC-29 |
| MC-3 Trowel
MC-4 | MC-12 Trowel
MC-13 | MC-21 Trowel
MC-22 | MC-30 Trowel
MC-31 |
| MC-5 Trowel
MC-6 | MC-14 Trowel
MC-15 | MC-23 Trowel
MC-24 | MC-32 Trowel
MC-33 |
| MC-7 Trowel
MC-8 | MC-16 Trowel
MC-17 | MC-25 Trowel
MC-26 | MC-34 Trowel
MC-35 |
| MC-9 Trowel
MC-18 | MC-19 Trowel
MC-20 | MC-27 Trowel
MC-28 | MC-36 Trowel
MC-37 |

MC
BE SURE, BUILD SURE

Concrete Cosmetics Application Handbook

- Bond coat
- Coarse filler
- Fine and super fine fillers
- Universal filler
- Concrete cosmetic filler additives
- Concrete retouching
- Hydrophobization
- Impregnation
- Cleaning
- Tools

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BE SURE. BUILD SURE.

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