

# Planitop Smooth & Repair R4

**R4-CLASS RAPID-SETTING STRUCTURAL  
CEMENTITIOUS MORTAR FOR REPAIRING  
AND SMOOTHING CONCRETE**



Just **1** product for  
smoothing  
and repairing  
concrete  
surfaces



# Planitop Smooth & Repair R4



Application of **Planitop Smooth & Repair R4** by trowel



Floating the surface of **Planitop Smooth & Repair R4** to create a smooth finish

**R4-class, rapid-setting fibre-reinforced structural cementitious mortar, applied in a single layer from 3 to 40 mm thick, for repairing and smoothing concrete.**

- **Good maintenance of workability and rapid hardening.**
- **Highly thixotropic for easy application on both vertical and overhead surfaces, with no waste.**
- **Packed in waterproof vacuum-packed bags for better storage.**

## Technical characteristics

- **Very low emission** level of volatile organic compounds (VOC) EMICODE EC1 R Plus.
- **Highly versatile**, by adding **Mapetard ES** its excellent inherent workability can be extended by a further 15-20 minutes.
- **Excellent adhesion** ( $\geq 2$  MPa) to both old concrete, if roughened and wetted with water prior to application, and to rebar, especially when treated with **Mapefer** or **Mapefer 1K**, anti-corrosion, re-alkalising cementitious mortar certified according to EN 1504-7 "*Corrosion protection of reinforcement*".



Application of **Planitop Smooth & Repair R4** with a finishing trowel



Floating the surface of **Planitop Smooth & Repair R4**

- **High dimensional stability** to reduce the risk of cracking and crazing during both the plastic phase and when hardened.
- **Excellent flow** to facilitate spreading with a smooth trowel.
- **Easy to create natural finishes** with a sponge float around 20 minutes after applying the product as is and after around 35-40 minutes if admixed with **Mapetard ES** (at +20°C).
- **Thermally compatible** with freeze/thaw cycles measured as adhesion according to EN 1542.
- **Impermeable to water.**
- **Planitop Smooth & Repair R4** meets the minimum requirements of **EN 1504-3** (“Structural and non-structural repairs”) for non-structural **R4-class** mortars and the requirements of **EN 1504-2** coating (C) according to principles **MC** and **IR** (“Concrete surface protection systems”).
- The special 25 kg **vacuum-packed polyethylene bags** allow the product to be stored outside. Contact with the atmosphere and rain have no affect on the product’s characteristics.

# Planitop Smooth & Repair R4

## Where to use

- Structural repairs and smoothing over internal and external, horizontal and vertical concrete surfaces; suitable for repairing structures exposed to the open air and in permanent contact with water.
- Quick repairs to deteriorated parts in concrete on beams, pillars and structural members where the use of high strength (R4-class) mortar is specified. It may also be used to repair non-structural members such as buffer walls, cornices and the front edges of balconies as long as the base concrete is in good condition.
- Quickly smoothing over surface defects in cast concrete, such as deep gravel clusters, spacer holes, construction joints, etc. before painting the surface.
- Repairs and structural strengthening of concrete by integrating with mortar.
- Repairs to prefabricated concrete members and elements.
- Repairs to concrete damaged by rusty rebar due to carbonation and/or chloride penetration.

Product classification according to the minimum requirements of EN 1504-3 and 1504-2



CE-Mark



GEV certification (EMICODE EC1 R Plus)

**NEW!**



A product that helps earn Leed award points



Exclusive Mapei technology to identify products for rapid installation of floor and wall coverings

## Technical data

### Product and application data

Maximum size of aggregate (EN 1015-1):	<b>0.4 mm</b>
Application temperature:	<b>+5 to +35°C</b>
Pot life of mix:	<b>approx. 15 minutes (*)</b>
Minimum applicable thickness:	<b>3 mm</b>
Maximum applicable thickness per layer:	<b>40 mm</b>

### Performance characteristics

Compressive strength after 28 days (EN 12190):	<b>52 MPa</b>
Flexural strength after 28 days (EN 196/1):	<b>8 MPa</b>
Compressive modulus of elasticity (EN 13412):	<b>24 GPa</b>
Adhesion to concrete after 28 days (EN 1542):	<b>≥ 2 MPa</b>
Thermal compatibility with freeze/thaw cycles with de-icing salts (EN 13687/1) after 50 cycles measured as adhesion according to EN 1542:	<b>≥ 2 MPa</b>
Capillary absorption (EN 13057):	<b>≤ 0.5 kg/m<sup>2</sup> • h<sup>0.5</sup></b>
Impermeability expressed as coefficient of permeability to free water (EN 1062-3):	<b>W &lt; 0.1 kg/m<sup>2</sup> • h<sup>0.5</sup> Class III (low permeability) according to EN 1062-1</b>
Permeability to water vapour – equivalent air thickness S <sub>D</sub> (EN ISO 7783-1):	<b>S<sub>D</sub> &lt; 5 m Class I (permeable to water vapour)</b>
Resistance to accelerated carbonation (EN 13295):	<b>&lt; reference concrete</b>
Crack resistance (“O-Ring Test”):	<b>no cracks after 180 days</b>
Reaction to fire (EN 13501-1):	<b>Class A1</b>
Packaging:	<b>25 kg vacuum-packed polyethylene bags</b>
Consumption:	<b>approx. 17 kg/m<sup>2</sup> per cm of thickness</b>

(\*) Adding **Mapetard ES** extends the workability time of **Planitop Smooth & Repair R4** by a further 15-20 minutes.

N.B. The performance characteristics of **Planitop Smooth & Repair R4** admixed with **Mapetard ES** are the same as the product without admixture.

# Mapetard ES

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Adding **Mapetard ES** to the mixing water for **Planitop Smooth & Repair R4**



Adding **Planitop Smooth & Repair R4** to the mixing water admixed with **Mapetard ES**

**Set-retarding admixture for rapid-setting cementitious mortar.**

## Technical characteristics

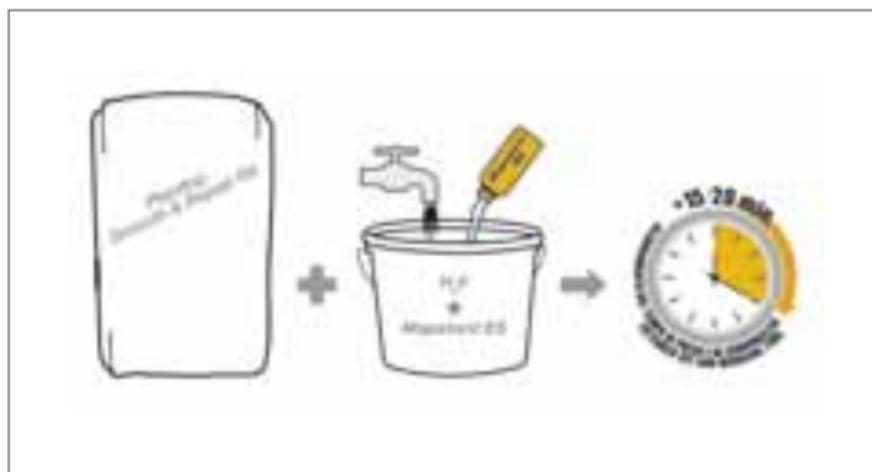
- Special chloride-free liquid admixture in watery solution to delay setting time and, as a result, extend the workability time of rapid-setting cementitious mortar such as **Planitop Smooth & Repair R4**.
- When **Mapetard ES** is added to the mixing water for **Planitop Smooth & Repair R4**, at a rate of up to one 0.25 kg canister for each 25 kg bag, it extends the excellent inherent workability of the mortar by 15-20 minutes.



Mixing Planitop Smooth & Repair R4

## Where to use

- Particularly recommended when, because of particular site conditions or high temperatures, the workability time of **Planitop Smooth & Repair R4** needs to be extended.



# Planitop Smooth & Repair R4



- 1 Concrete Substrate
- 2 One-component corrosion-inhibiting cement mortar **Mapefer 1K**
- 3 Structural R4-class, rapid-setting, thixotropic, fibre-reinforced, cementitious mortar for repairing and smoothing concrete **Planitop Smooth & Repair R4**
- 4 Water-based undercoat **Malech**
- 5 Protective elastic paint **Elastocolor Paint**

# Planitop Smooth & Repair



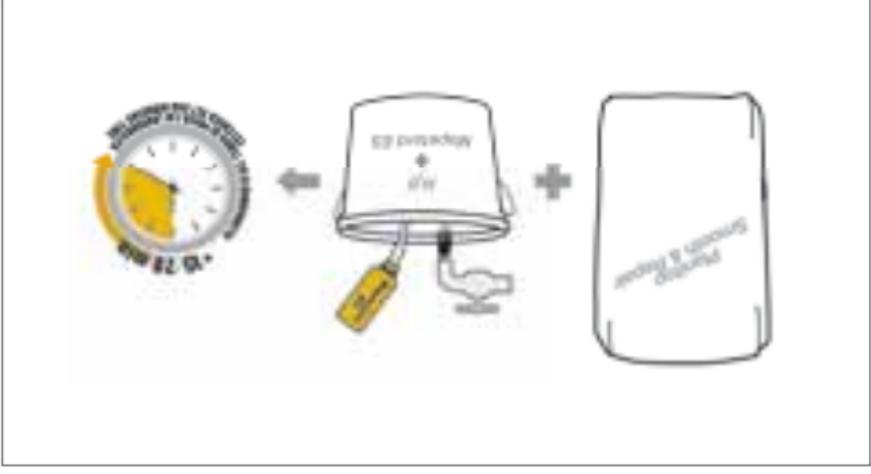
**1** Concrete Substrate

**2** One-component corrosion-inhibiting cement mortar *Mapofer 1K*

**3** R2-class, rapid-setting, thixotropic, fibre-reinforced, cementitious mortar for repairing and smoothing concrete *Planitop Smooth & Repair*

**4** Water-based undercoat *Malech*

**5** Protective elastic paint *Elastocolor Paint*



**Where to use**

- Particularly recommended when, because of particular site conditions or high temperatures, the workability time of **Planitop Smooth & Repair** needs to be extended.

Mixing Planitop Smooth & Repair



- Special chloride-free liquid admixture in watery solution to delay setting time and, as a result, extend the workability time of rapid-setting cementitious mortar such as **Plantop Smooth & Repair**.
- When **Mapetard ES** is added to the mixing water for **Plantop Smooth & Repair**, at a rate of up to one 0.25 kg canister for each 25 kg bag it extends the excellent inherent workability of the mortar by 15-20 minutes.

## Technical characteristics

Set-retarding admixture for rapid-setting cementitious mortar.

Adding **Mapetard ES** to the mixing water for **Plantop Smooth & Repair**



Adding **Plantop Smooth & Repair** to the mixing water admixed with **Mapetard ES**



# Mapetard ES

## Technical data

Product and application data	
0.4 mm	Maximum size of aggregate (EN 1015-1):
from +5 to +35°C	Application temperature:
approx. 15 minutes (*)	Pot life of mix:
3 mm	Minimum applicable thickness:
40 mm	Maximum applicable thickness per layer:
Performance characteristics	
≥ 18 MPa	Compressive strength after 28 days (EN 12190):
≥ 4 MPa	Flexural strength after 28 days (EN 196/1):
13 GPa	Compressive modulus of elasticity (EN 13412):
≥ 1.5 MPa	Adhesion to concrete after 28 days (EN 1542):
≥ 1.5 MPa	Thermal compatibility with freeze/thaw cycles with de-icing salts (EN 13687/1) after 50 cycles measured as adhesion according to EN 1542:
≤ 0.4 kg/m <sup>2</sup> • h <sup>0.5</sup>	Capillary absorption (EN 13057):
W > 0.1 kg/m <sup>2</sup> • h <sup>0.5</sup> Class III (low permeability) according to EN 1062-1	Impermeability expressed as coefficient of permeability to free water (EN 1062-3):
S <sub>D</sub> > 5 m Class I (permeable to water vapour)	Permeability to water vapour – equivalent air thickness S <sub>D</sub> (EN ISO 7783-1):
Class A1	Reaction to fire (EN 13501-1):
25 kg vacuum-packed polyethylene bags; boxes of four 5 kg bags	Packaging:
approx. 15 kg/m <sup>2</sup> per cm of thickness	Consumption:

(\*) Adding **Mapetard ES** extends the workability time of **Plantop Smooth & Repair** by a further 15-20 minutes.

N.B. The performance characteristics of **Plantop Smooth & Repair** admixed with **Mapetard ES** are the same as the product without admixture.

# Plantop Smooth & Repair

## Where to use

- Non-structural repairs and smoothing over internal and external horizontal and vertical concrete surfaces; suitable for repairing structures exposed to the open air and/or in permanent contact with water.
- Quick repairs to deteriorated parts in concrete and the corners of beams, pillars, buffer walls, cornices and the front edges of balconies.
- Quickly smoothing over surface defects in cast concrete such as gravel clusters, spacer holes, construction joints, etc. before painting the surface.
- Repairing and smoothing over concrete mouldings on civil buildings such as skirt roofs and protruding decorative elements.
- Repairing pre-cast concrete structures.

Exclusive Mapei technology to identify products for rapid installation of floor and wall coverings

**Fast Track Ready**

CE-Mark

EN 1504-3

EN 1504-2

R2

MC-IR

E1 PLUS

GREEN INNOVATION

A product that helps earn lead award points

Product classification according to the minimum requirements of EN 1504-3 and 1504-2

GEV certification (EMICODE E1 Plus)

- **High dimensional stability** to reduce the risk of cracking and crazing during both the plastic phase and when hardened.
- **Excellent flow** to facilitate spreading with a smooth trowel.
- **Easy to create natural finishes** with a sponge float around 30 minutes after applying the product as is and after around 45-50 minutes if admixed with **Mapetard ES** (at +20°C).
- **Thermally compatible** with freeze/thaw cycles measured as adhesion according to EN 1542.
- **Low water permeability.**
- **Plantop Smooth & Repair** meets the minimum requirements of **EN 1504-3** ("Structural and non-structural repairs") for non-structural **R2-class mortars** and the requirements of **EN 1504-2** coating (C) according to principles **MC** and **IR** ("Concrete surface protection systems").
- The special **25 kg vacuum-packed polyethylene bags** allow the product to be stored outside. Contact with the atmosphere and rain have no effect on the product's characteristics. Also available in cardboard boxes with four 5 kg bags.

Smoothing **Plantop Smooth & Repair** with a straight edge



Floating the surface of **Plantop Smooth & Repair**



# Planitop Smooth & Repair



Application of Planitop Smooth & Repair with a finishing trowel



Application of Planitop Smooth & Repair by trowel

- R2-class, rapid-setting, fibre-reinforced cementitious mortar applied in a single layer from 3 to 40 mm thick, for repairing and smoothing concrete.
- Good maintenance of workability and rapid hardening.
- Highly thixotropic for easy application on both vertical and overhead surfaces, with no waste.
- Packed in waterproof vacuum-packed bags for better storage.

## Technical characteristics

- **Very low emission** level of volatile organic compounds (VOC) EMICODE EC1 R Plus.
- **Highly versatile**, by adding **Mapetard ES** its excellent inherent workability can be extended by a further 15-20 minutes.
- **Excellent adhesion** ( $\geq 1.5$  MPa) to both old concrete, if roughened and wetted with water prior to application, and to rebar, especially when treated with **Mapeter** or **Mapeter 1K**, anti-corrosion re-alkalising cementitious mortar certified according to EN 1504-7 “Corrosion protection of reinforcement”.

# Planitop Smooth & Repair

**R2-CLASS RAPID-SETTING CEMENTITIOUS  
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