Ultra rapid-hardening cementitious mortar with high resistance to abrasion for making and repairing industrial floors

WHERE TO USE
Ultratop HD mortar is made from special hydraulic binders and is used for making and repairing high strength, ultra rapid-hardening industrial floors. Thanks to its rapid application and hardening characteristics, floors made from Ultratop HD may be put into service extremely quickly. Ultratop HD is the ideal product for surfaces subjected to high mechanical stresses and abrasion caused by the constant movement of wheeled vehicles in warehouses, production areas, logistics warehouses and areas used for loading and unloading goods.

Some application examples
• Patching up and repairing concrete industrial floors in warehouses, storage depots, logistics warehouses, shopping centres, supermarkets and areas used for loading and unloading goods where surfaces need to be put back into service within a few hours of starting work on the floor.

• Making industrial floors in storage areas, warehouses, storage depots, logistics warehouses, commercial areas and areas used for loading and unloading goods subjected to intense wheeled vehicle traffic and the movement of special loads.

• Making and repairing industrial floors in storage areas and partially covered waiting bays in areas used for loading and unloading goods.

TECHNICAL CHARACTERISTICS
Ultratop HD is a grey and light grey powdered mortar made from special rapid-setting and hydrating binders, graded silica sand, synthetic resins and special admixtures according to a formulation developed in the MAPEI Research & Development laboratories.

When mixed with water, Ultratop HD forms a mortar with good workability that is easy to apply in layers at least 10 mm thick using hand tools or a worm-screw rendering machine.

Immediately after applying the product and compacting the surface with a power float Ultratop HD reaches a high level of compressive and tensile strength and has high resistance to abrasion as soon as it is applied. It adheres perfectly to substrates and may be transited by service vehicles within just a few hours of being applied. Power-floating the surface of the mortar leaves a smooth finish.

Ultratop HD has the following performance characteristics:
• high resistance to abrasion;
• high compressive and flexural strength;
• ultra-rapid hardening;
• easy to prepare and apply;
• surfaces can be put back into service very quickly;
• suitable for both repair work and for making new industrial floors;
• may be used for internal floors;
• eco-friendly.

RECOMMENDATIONS
• Do not apply Ultratop HD on substrates with a water film on the surface or on concrete within 10 days on concrete with curing time less than 10 days.
• Do not apply Ultratop HD on dusty, crumbling or weak substrates.
• Do not apply Ultratop HD directly on surfaces with oil or grease stains.
• Do not add water to the mix once Ultratop HD starts to set.
• Do not add lime, cement, gypsum or other binders to Ultratop HD.
• Do not expose the mixed product to sources of heat.
• Do not use Ultratop HD for floating screeds. Ultratop HD must always be anchored to a solid, compact substrate.
• Do not apply Ultratop HD on metal or ceramic or on stone material in general.
• Do not apply Ultratop HD if the temperature is lower than +5°C or higher than +35°C.
• Floors made using Ultratop HD may have an uneven colour, typical of cementitious products. An uneven colour is normal with cementitious products, but it is also due to power-floating the surface which tends to highlight dark and light patches.
• Use suitable specific cleaning equipment and detergent to clean the floor, depending on the type of dirt or stain to be removed.
• The temperature of the substrate must be at least 3°C higher than the dew-point temperature.

APPLICATION PROCEDURE
Substrate preparation
The surface of concrete floors must be dry, clean and sound and have no crumbling or detached portions. The substrate concrete must be cured for at least 10 days, its compressive strength must be at least 25 N/mm² and its tensile strength must be at least 1.5 N/mm².
The strength of the substrate must always be suitable for its final use and the types of load to which it will be subjected.
The surface of the substrate must be prepared mechanically with a milling machine, and remove all traces of dirt, cement laitance and crumbling or loose portions and to make it sufficiently rough to enable the new cementitious layer to adhere perfectly.
Repair any cracks in the surface by filling them with Eporip and broadcasting the surface with quartz sand.
Before applying the bonding slurry, remove all traces of dust from the surface with a vacuum cleaner.

Preparing the bonding slurry
Prepare and apply bonding slurry made from Primer HD over the surface to be coated with Ultratop HD. Please refer to the technical data sheet for the preparation and the application of Primer HD.
For substrates particularly deteriorated, instead of bonding slurry made from Primer HD, apply a coat of Eporip and immediately broadcast the surface with Quartz 1.2. In this case, wait until the Eporip is completely dry before applying Ultratop HD.

Preparation of the mix
Pour a 25 kg bag of Ultratop HD into a container with 3 litres of clean water while mixing and keep mixing with an electric mixer at low speed to form a smooth, lump-free mix. Only prepare quantities of Ultratop HD which may be applied within 20 minutes of mixing at +23°C; its workability time varies according to the surrounding temperature and reduces as the temperature increases.
If larger quantities of the product are required for medium to large surfaces, we recommend mixing the product in a vertical mixer and then pumping the mix using a suitable rubber pipe.
When preparing the product in a mixer, the amount of water required for blending the product is the same as for manual mixing.
Keep mixing the product until it is completely blended before spreading it on the surface.

Spreading the mix
Pour Ultratop HD onto the floor and spread it out evenly to the thickness required using a smooth trowel and a spreader.

Application of the mix
After spreading the mix, level off the surface with straight edges before power-floating the surface.
Immediately after levelling off the mix, power-float the surface of Ultratop HD to form a compact, smooth finish with no bleeding.
When laying the product, form expansion joints in the same pattern as the joints in the substrate.

Cleaning
Clean tools used to prepare and apply Ultratop HD immediately after use with running water. Once hardened the product may only be removed mechanically.

CONSUMPTION
Approximately 18 kg/m² per cm of thickness.

PACKAGING
Ultratop HD is available in 25 kg bags.

STORAGE
Ultratop HD remains stable for 12 months if stored in a dry place.
The product complies with the conditions of Annex XVII to Regulation (EC) N° 1907/2006 (REACH) - All. XVII, item 47.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION
Ultratop HD contains cement that when in contact with sweat or other body fluids causes irritant alkaline reaction and allergic

SAFETY INSTRUCTIONS FOR USE
Ultratop HD is an alkaline product. Ultratop HD contains cement that when in contact with sweat or other body fluids causes irritant alkaline reaction and allergic reactions in sensitised individuals.

SAFETY INSTRUCTIONS FOR STORING
Ultratop HD is an alkaline product. Ultratop HD contains cement that when in contact with sweat or other body fluids causes irritant alkaline reaction and allergic reactions in sensitised individuals.
## TECHNICAL DATA (typical values)

### PRODUCT IDENTITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistency:</td>
<td>powder</td>
</tr>
<tr>
<td>Colour:</td>
<td>grey and light grey</td>
</tr>
<tr>
<td>Bulk density (kg/m³):</td>
<td>1,300</td>
</tr>
<tr>
<td>Dry solids content (%)</td>
<td>100</td>
</tr>
</tbody>
</table>

### APPLICATION DATA (at +23°C - 50% R.H.)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Mixing ratio:</td>
<td>approx. 12 parts of water per 100 parts by weight of Ultratop HD</td>
</tr>
<tr>
<td>Thickness per layer (mm):</td>
<td>from 10</td>
</tr>
<tr>
<td>Density of mix (kg/m³):</td>
<td>2,300</td>
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<tr>
<td>pH of mix:</td>
<td>11</td>
</tr>
<tr>
<td>Application temperature:</td>
<td>+5°C to +35°C</td>
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<tr>
<td>Workability time:</td>
<td>20 mins</td>
</tr>
<tr>
<td>Setting time:</td>
<td>40-80 mins</td>
</tr>
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<td>Set to foot traffic:</td>
<td>3 hours</td>
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### FINAL PERFORMANCE

<table>
<thead>
<tr>
<th>Performance characteristic</th>
<th>Test method</th>
<th>Requirements according to EN 13813 for cementitious screeds</th>
<th>Performance of product</th>
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<tbody>
<tr>
<td>Compressive strength:</td>
<td>EN 13892-2</td>
<td>5 &lt; N/mm² &lt; 80 (28 gg)</td>
<td>+ 23°C</td>
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<tr>
<td></td>
<td></td>
<td>24 h 35</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>72 h 40</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 d 50</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>28 d 55</td>
<td></td>
</tr>
<tr>
<td>Flexural strength:</td>
<td>EN 13892-2</td>
<td>1 &lt; N/mm² &lt; 50 (28 gg)</td>
<td>+ 23°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24 h 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>72 h 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 d 8</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>28 d 10</td>
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</tr>
<tr>
<td>Abrasion resistance Böhme abrasion test:</td>
<td>EN 13892-3</td>
<td>1,5 &lt; cm³/50 cm² &lt; 22</td>
<td>+ 23°C</td>
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<td></td>
<td></td>
<td>6</td>
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<td>Reaction to fire:</td>
<td>EN 13501-1</td>
<td>Value declared by manufacturer</td>
<td>E</td>
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</tbody>
</table>
reactions to those predisposed. It can cause
damage to eyes.
It is recommended to use protective
gloves and goggles and to take the usual
precautions for handling chemical products.
In case of contact with eyes or skin wash
immediately with plenty of water and seek
medical attention.
For further and complete information about
the safe use of our product please refer to
the latest version of our Material Safety Data
Sheet.

PRODUCT ONLY FOR PROFESSIONAL USE.

WARNING
Although the technical details and
recommendations contained in this product
data sheet correspond to the best of our
knowledge and experience, all the above
information must, in every case, be taken as
merely indicative and subject to confirmation
after long-term practical application; for
this reason, anyone who intends to use the
product must ensure beforehand that it is
suitable for the envisaged application. In
every case, the user alone is fully responsible
for any consequences deriving from the use
of the product.

Please refer to the current version of the
Technical Data Sheet, available from our
website www.mapei.com

All relevant references
for the product are available
upon request and from
www.mapei.com