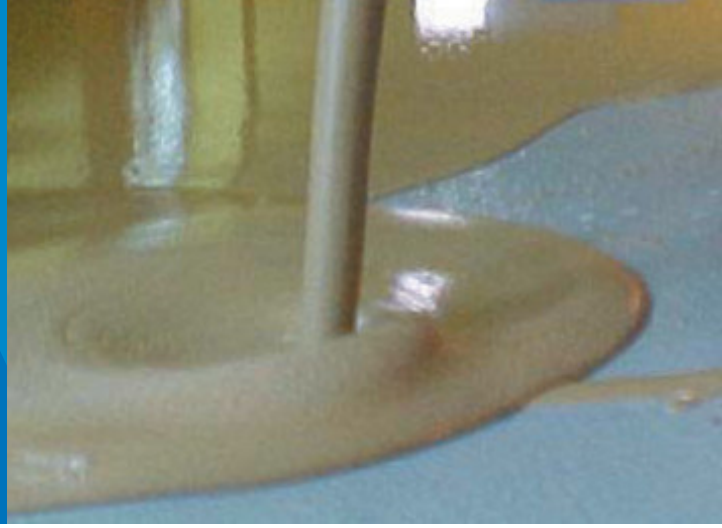
ULTRATOP

Ultra-fast setting, self-levelling mortar based on special hydraulic binders for abrasion-resistant flooring, thickness from 5 to 40 mm



CLASSIFICATION ACCORDING TO EN 13813

Smoothing layers of **Ultratop** applied according to the specifications in this Technical Data Sheet are classified as CT - C40 - F10 - A9 - $A2_{fl}$-s1 in compliance with EN 13813 Standards.

WHERE TO USE

Ultratop is used internally in public and industrial buildings, for levelling and smoothing new or existing concrete and ceramic substrates in thickness from 5 to 40 mm, to make them suitable for heavy pedestrian use in shopping centres, offices, shops, showrooms and areas where rubber-wheeled vehicles are in use.
Ultratop may be left as a finished floor due to its high mechanical strength and resistance to abrasion and thanks to its versatility, is suitable for numerous applications in the decorating sector of buildings for civil use.

Some application examples

· New floors in shopping centres, supermarkets, restaurants, shops and showrooms.
· Abrasion-resistant floors on concrete, old terrazzo, ceramic tiles and natural stones.
· Industrial floors that must be protected with epoxy coatings and paints in chemical and food processing plants, textile mills and tanneries.
· New, polished floors inside shopping centres, showrooms, shops, restaurants and flats.
· New floors, such as "*terrazzo alla veneziana*", inside homes, offices, shops, museums, theatres and exhibition halls when used in combination with natural aggregates.

TECHNICAL CHARACTERISTICS

Ultratop is a self-levelling product in powder available in light grey, white, beige, rust red, anthracite and standard (beige going on light brown) made up of special quick-drying and quick-setting binders, specially graded silica sand, synthetic resins and special admixtures developed in MAPEI's own Research Laboratories.
When mixed with water, **Ultratop** becomes a self-levelling compound which is easy to apply either by hand or pump in thickness from 5 to 40 mm.
After setting, which takes place in only a few hours, **Ultratop** has a high level of compressive and flexural strength, bonds perfectly to the substrate and thanks to its special composition, dries quickly so that any further finishing coat may be applied after a very short time.
Ultratop is classified as CT - C40 - F10 - A9 - $A2_{fl}$-s1 according to EN 13813:2002 Standards. CT refers to a cementitious-based product, C40 and F10 refer to the compressive strength and flexural strength, respectively, after 28 days, A9 is the Böhme abrasion-resistance coefficient and $A2_{fl}$-s1 is the fire-reaction class.
Around 3 days after application, **Ultratop** may be dry-polished using diamond grinding disks to get a shiny, reflective finish similar to natural stone.
Ultratop may also be used to make flooring with a "Terrazzo alla Veneziana" effect, in which the dry grinding process brings out the characteristics of the aggregates (colour, shape and size) to create flooring with an exclusive, original finish which is quick and easy to install.

RECOMMENDATIONS

· Do not add more water to the mix once **Ultratop** starts to set.
· Do not add lime, cement, gypsum or other binders to the **Ultratop** mix.
· Do not use **Ultratop** on substrates which are subject to rising damp (consult the MAPEI Technical Services Department).
· Do not use **Ultratop** for floating screeds. **Ultratop** must always be fixed to a solid, compact substrate.
· Do not use **Ultratop** on wet surfaces.
· Do not use **Ultratop** on metallic surfaces.
· Do not use **Ultratop** at temperatures lower than +5°C or higher than +35°C.
· The colours of floors made using **Ultratop** are not always uniform, a typical feature of cementitious-based products. Apart from the inherent nature of this kind of product, differences in the various colours may also be caused by the way the product is applied. Also, it must be cast continuously without long pauses, in order to guarantee perfect flatness.

APPLICATION PROCEDURE

Preparing the substrate

Substrates must be dry, solid and free of dust, loose and detached parts, paint, wax, oil and all other pollutants.
Apply special compressible band around the perimeter of the rooms to be laid and around any vertical elements which pass through the floor (such as pillars and columns).
Concrete and/or ceramic or natural stone surfaces must be prepared by shot-blasting or milling and primed with **Primer SN** and, where required, reinforced with **Mesh 320** (glass fibre mesh) followed by a fully broadcast of **Quartz 1.2**.
After application, leave **Primer SN** to dry for 12-24 hours, according to the surrounding temperature.
Before casting **Ultratop**, remove excess sand with a vacuum cleaner.
Instead of **Primer SN**, absorbent concrete substrates may be primed with 1-2 coats of **Primer LT** diluted with water at a ratio of 1:1 by weight. Let the primer dry (from 2 to 5 hours, depending on the temperature and the humidity of the environment), before applying **Ultratop**.
Cracks in the substrate must be repaired beforehand using **Eporip**.

Preparing the mix

Pour the content of a 25 kg bag of **Ultratop** into a container with 5.0 to 5.5 l of clean water and continue mixing with a low-speed electric mixer until a smooth, flowable, lump-free mix is formed.
Let it stand for 2-3 minutes and before applying, remix the blend for a few minutes.
Only prepare the amount of **Ultratop** which will be applied within 15 minutes at a temperature of +23°C. The pot life of the mix varies according to the temperature and reduces as the temperature increases.
If **Ultratop** is to be applied on medium to large-sized surfaces, larger quantities may be prepared using a vertical-shaft mixer.
If it is mixed using mechanical means, the amount of water required is the same as when mixing by hand. Mix the product until the blend is completely homogenous before laying.
A mechanical mixer is indispensable when **Ultratop** is applied using a rendering machine. This is the only method which guarantees that there is a continuous flow of material while casting.

Laying the mix to obtain a “natural” effect and a “polished” effect

Spread **Ultratop** by hand or with a mechanical means (rendering machine with a worm-screw feeder) in a single layer of 5 to 40 mm and a smoother for a natural finish, or at a thickness between 10 and 40 mm if the floor is to be polished.
Make sure that the material is cast in a regular, continuous flow without interruptions, to avoid defects in flatness and particularly visible differences in colour. Thanks to its self-levelling properties, **Ultratop** eliminates all imperfections left by the smoother.
When applying the product, respect the expansion joints in the substrate and form distribution joints at least every 50 m^2.
With heated floors, the bay size must be no more than 25-30 m^2.
If **Ultratop** is applied in civil buildings (appartaments, shops, etc.) where the rooms are smaller than 50 m^2, include distribution joints in correspondence with door-sills or where there is a significant variation in volume in the rooms to be coated.
Seal joints with **Mapeflex PU 45 FT** rapid-hardening, paintable, polyurethane sealant and adhesive with a high modulus of elasticity for movements up to 20%. Insert **Mapefoam** closed-cell polyethylene foam cord in the joint beforehand to obtain the required depth and avoid the sealant sticking to the bottom of the joint.
Floors made using **Ultratop** may be left as they are or may be polished if a particular aesthetic effect is required.
In the first case (flooring left as it is) approximately 3 days after application, the surface of **Ultratop** must be protected and then made non-absorbent using one of the finishing products from the **Mapefloor Finish** range. Choose the most suitable finishing system according to the aesthetic effect or the wear-resistance required. Please refer to MAPEI Technical Services Department for information.
In the second case (polished surface), apply **Mapecrete Stain Protection** after completing the dry polishing operations. Finally, apply a coat of **Mapelux Lucida** or **Mapelux Opaca** metallic wax to make successive cleaning and maintenance operations simpler.

Dry polishing process

Procedure
Dry-polishing with a diamond-tipped grinder may be carried out 2-3 days after applying the mix. The surface obtained will be completely smooth and shiny, which reflects light, very similar to natural stone such as granite.
After the first “roughing” treatment, which will lead to the formation of surface micro-porosities, the floor must be grouted with **Ultratop Stucco**, a special sealing product for this type of porosity which typically forms after the preliminary treatment. **Ultratop Stucco** is available in the same colours as **Ultratop**.

Complete the polishing operations using the remaining tools and then finish off the surface by applying **Mapecrete Stain Protection**, a specific stain-proof, water and oil-repellent product.
In order to make successive cleaning and maintenance operations easier, apply an even layer of **Mapelux Lucida** or **Mapelux Opaca**, metallic wax over the entire surface of the floor.

"*Terrazzo alla veneziana*" with natural aggregates type floors

Procedure
Prepare the substrate mechanically as described in the "**APPLICATION PROCEDURE - Preparing the substrate**" section.
Prime the surface with **Primer SN** (reinforced with **Mesh 320** if required) and fully broadcast the surface with **Quartz 1.2**.
Leave **Primer SN** to dry for 12-24 hours, according to the surrounding temperature. Remove excess sand with a vacuum cleaner.
Apply a coat of **Mapefloor I 910** (two-component epoxy binder) to act as a bonding promoter with a short-haired roller on the primed substrate and prepare the mix comprising **Mapefloor I 910** and natural aggregates (with particles no smaller than 1 cm), at a ratio of 1:20 in a cement mixer.
N.B.: This ratio may be used for aggregates with a particle size of 1 to 1.5 cm. For particles larger than 1.5 cm, we recommend carrying out preliminary tests.
Mix for several minutes and pour the mix on the surface just after priming it with **Mapefloor I 910** (spread on the mix while **Mapefloor I 910** is still fresh).
Compact the mix immediately after spreading it on with a flat trowel or a power trowel.
Leave it to harden for at least 24 hours (at +20-23°C). Lower temperatures lead to longer hardening times.
Prepare **Ultratop** as described in the "**APPLICATION PROCEDURE - Preparing the mix**" section and apply the fresh mortar on the hardened surface of the aggregates, making sure that all the voids between the aggregates are completely filled.
Carry out this operation with the help of a rubber trowel or spreader to help the mortar penetrate into the previously prepared substrate.

Dry polishing process procedure

Dry-polishing with a diamond-tipped grinder may be carried out 2-3 days after applying the **Ultratop** mortar. The surface obtained will be completely smooth and shiny, which reflects light, very similar to "*terrazzo alla veneziana*" floors.
As described previously, the floor must be grouted using **Ultratop Stucco** after the "roughing" cycle.
Finishing polishing the floor and then finish off the surface by applying **Mapecrete Stain Protection**, a specific stain-proof, water and oil-repellent product.
After the finishing treatment, apply a coat of **Mapelux Lucida** or **Mapelux Opaca** metallic wax to make successive cleaning and maintenance operations simpler.
Note: *For more information regarding tools required for the dry-polishing process, please contact MAPEI Technical Services Department.*


Preparation of the substrate by shot-blasting


Preparation of the product with a drill


Preparation of Ultratop in a mixer


Mechanical application of Ultratop


Smoothing Ultratop immediately after spreading


The final result of a floor made using Ultratop

"Terrazzo alla veneziana" effect. Application of Mapefloor I 910

Application of the mixture of natural aggregates + Mapefloor I 910

Application of Ultratop on the hardened surface of the mixture made of natural aggregates + Mapefloor 910

CLEANING

Whilst still fresh, **Ultratop** may be cleaned from hands and tools with water.

CONSUMPTION

Ultratop used pure: 16.5-17.5 kg/m² per cm of thickness.
Ultratop used for the "Terrazzo alla veneziana" system: according to the granulometric size of the natural aggregate used.

PACKAGING

Ultratop is available in 25 kg bags.

STORAGE

Ultratop remains stable for 12 months if stored in a cool dry place.
If stored for longer periods, the setting time of **Ultratop** may increase but without affecting its final characteristics.
The product complies with the conditions of Annex XVII to Regulation (EC) N° 1907/2006 (REACH), item 47.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Ultratop contains cement that when in contact with sweat or other body fluids causes irritant alkaline reactions and allergic 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 chemicals. If the product comes in contact with the 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 FOR PROFESSIONAL USE.

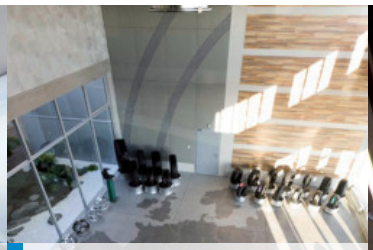
TECHNICAL DATA (typical values) **In compliance with:**	**– EN 13813 : 2002, CT - C40 - F10 - A9 - $A2_{fl}$-s1**
PRODUCT IDENTITY	
Consistency:	fine powder
Colour:	light grey, standard, white, beige, rust red and anthracite
Bulk density (kg/m³):	1,300
Dry solids content (%):	100

EMICODE:			EC1 R Plus - very low emission		
APPLICATION DATA (at +23°C and 50% R.H.)					
Mixing ratio:			approx. 20-22 parts water per 100 parts by weight of **Ultratop**		
Thickness (mm):			from 5 to 40		
Self-levelling:			yes		
Density of mix (kg/m³):			2,000 to 2,100		
pH of mix:			approx. 12		
Application temperature range:			from +5°C to +35°C		
Pot life:			15 minutes		
Setting time:			60 minutes		
Set to light foot traffic:			3-4 hours		
FINAL PERFORMANCES					
Performance characteristic	**Test method**	**Requirements according to EN 13813 for cementitious screeds**	**Performance of product**		
Compressive strength:	EN 13892-2	5 < N/mm² < 80 (28 days)		+ 5°C	+ 23°C
			24 h	≥ 12	≥ 20
			72 h	≥ 18	≥ 25
			7 d	≥ 23	≥ 30
			28 d	≥ 30	≥ 40
Flexural strength:	EN 13892-2	1 < N/mm² < 50 (28 days)		+ 5°C	+ 23°C
			24 h	≥ 3	≥ 5
			72 h	≥ 4	≥ 7
			7 d	≥ 5	≥ 9
			28 d	≥ 7	≥ 11
Adhesion to concrete:	EN 13892-8	> 1.5 N/mm²		+ 23°C	
			24 h	2.5 (substrate failure)	
			28 d	2.5 (substrate failure)	
Abrasion resistance Taber abrasion test (H22 disk - 500 g - 200 rpm):	ASTM D4060			+ 5°C	+ 23°C

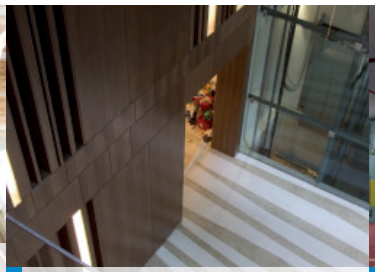
			7 d	1.7	0.7
			28 d	1	0.6
Abrasion resistance Böhme abrasion test:	EN 13892-3	1.5 < $cm^3/50\ cm^2$ < 22		+ 23°C	
			28 d	9	
Reaction to fire:	EN 13501-1	Value declared by manufacturer	A2fl-s1		
Castor chair test* (castor type W, n. of cycles 25000):	EN 425		delamination: no cracks: no		

** Test carried out on a topcoat from the **Mapefloor Finish** range*

Show-Room Quartarella Altamura (BA) - Italy. "Natural effect" anthracite Ultratop



Show-Room Szuper Gumi - Budapest - Hungary. Ultratop with "polished effect"



Hotel Design - Budapest - Hungary. "Terrazzo alla veneziana" effect Ultratop

Floor made using red Ultratop in the Berlaymont Building, Brussels

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

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