

Document type

Technical Data Sheet

Name	PASTELLONE						
Description	Natural, hydraulic lime and cement-based plaster in powder form, for decorative floor and wall coatings. PASTELLONE adapts to a wide variety of uses and aesthetic needs: whether applied to interior or exterior walls, shower walls, tabletops or interior flooring, this decorative finish marries elegance with strength and durability.						
Composition	Hydraulic lime, Portland cement and selected marble powders						
Versions	PASTELLONE MEDIUM, PASTELLONE FINE, PASTELLONE MEDIUM GREY						
Grain size	PASTELLONE MEDIUM: 700 microns PASTELLONE FINE: 400 microns						
Appearance	Powder						
Colour	White, it can be tinted in any colour with lime-compatible colourants. PASTELLONE MEDIUM GREY is the only version which comes in natural grey.						
Packaging	16 kg net polyethylene containers						
Application	By hand, with a steel trowel						
Type of Surface	Interior and exterior vertical surfaces, included wet areas such as showers and saunas Interior flooring Furniture <u>New Wall Surface</u> Plaster: no priming necessary Gypsum / Plasterboard / Medium Density: one coat of QUARTZ PRIMER <u>Old Wall Surface</u> Plaster: one coat of QUARTZ PRIMER Fast drying / Limewash: brush down and apply one coat of QUARTZ PRIMER Polished Lime: Abrade, brush down and apply one coat of QUARTZ PRIMER Washable Paint: one coat of QUARTZ PRIMER <u>Floors</u> New Cement Screed*: Clean and apply one coat of UNIVERSAL PRIMER Plywood Panels*: See notes below, 1 or 2 coats of QUARTZ PRIMER Tiles*: See notes below, 1 or 2 coats of GLP Marble: 1 coat of GLP <u>Furniture</u> Wood: 1 coat of PRIMER Q, then 1 or 2 coats of BASE FOR FURNITURE						
Dilution	To achieve the desired paste consistency, mix water with PASTELLONE MEDIUM at a ratio of 300 ml per 1 kg, and with PASTELLONE FINE at a ratio of 320 ml per 1 kg. Wear protective mask and glasses when mixing. For 16 kg of PASTELLONE MEDIUM, use 4.8 L of water, and for 16 kg of PASTELLONE FINE, use 5.12 L of water. Wear a protective masks when mixing the powder.						
Consumption	<table> <tr> <td>MEDIUM + FINE:</td><td>1.6 kg / sqm of powder after 3 coats</td></tr> <tr> <td>MEDIUM:</td><td>1.8 kg / sqm of powder after 3 coats</td></tr> <tr> <td>MEDIUM with aggregates:</td><td>1.8 kg – 2.3 / sqm of powder after 3 coats</td></tr> </table>	MEDIUM + FINE:	1.6 kg / sqm of powder after 3 coats	MEDIUM:	1.8 kg / sqm of powder after 3 coats	MEDIUM with aggregates:	1.8 kg – 2.3 / sqm of powder after 3 coats
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Drying	1-4 hours at 20°C / 68°F 8-14 hours at 20°C / 68°F 60 days	to the touch below the surface stable
Application temperatures	min 5 max 30°C – R.U. < 85% ca	
Coat Thickness	1.7 – 2 mm for a total of 2-3 coats. If with aggregates, it can reach 3 mm.	
VOC Classification	EU Directive 2004/42/CE: EU limit value for this product (cat A/I – water-based decorative effect coating): 200 g/l (2010). This product contains less than 1 g/l of VOC.	
Specific Weight	1.4 ± 0.2 (g/L)	
pH after 30 days	12.4 ± 0.50	
Vapour Permeability	SD ~ 0,04 m (DIN 52 615)	
Flammability	European Class of Reaction to Fire A1: non-combustible – no contribution to fire	
Mould Resistance	ASTM D 3274 – “Standard Test Method to evaluate the degree of surface disfigurement of paint by microbial, fungal and algae growth. Result: Front Panel 10/10/10 Back Panel 10/10/10 = no growth	
Hardness	Shore Hardness D: 80 average value (ASTM D 618: 23°C, 50% RH) Pencil Hardness: 6H (ASTM D3363)	
Compressive strength	After 28 days; > 15 N/mm2 average value (UNI EN 13892-2 ; 2005)	
Flexural strength	After 28 days; > 6 N/mm2 average value (UNI EN 13892-2 ; 2005)	
Adhesion strength	After 28 days; 1,2 N/mm2 average value (UNI EN 13892-8)	
Abrasion resistance	Thickness 1013 µm 1013, n. of cycles > 10000 (ASTM D 2486-06)	
Impact resistance:	Impact energy before the breaking point: 0.120 kg*m (UNI EN ISO 6272-2)	
Slip resistance:	R11 (DIN 51130: 2004). However, final slip resistance depends on the top protective treatment.	
Pot life	2 hours on average	
Shelf life	24 months when stored according to the recommended guidelines	
Storage	In original sealed packaging between 5° - 35°C in a dry, dark environment	
Safety Norms	Irritating. / Risk of serious damage to eyes. / Irritating to the skin. / Keep out of children. / Avoid contact with eyes. / In case of contact with eyes, clean immediately with water without rubbing them, and consult a doctor. / Wear suitable gloves and eyes / face protection. / In case of ingestion of the products, consult immediately a doctor showing him the can or the label of the product. Danger labelling under directives 67/548/EEC and 1999/45/EC and following amendments and adjustments. The product must be transported, used and stored according to current standards of hygiene and safety.	
Disposal	Product must be disposed of according to norms and regulations in force. Containers must be sent for recycling. Follow directions on the packaging	
Application Instructions	WARNINGS	

We recommend using materials from the same production batch for the same project. If you must use different batches, we suggest mixing their material together to avoid any slight variations in shading.

To ensure proper usage, dilution, and application of the products mentioned in these pages, please consult the corresponding technical data sheets.

When preparing the surface and applying the materials, we advise using appropriate tools and personal protective equipment (PPE).

During application and for the following 72 hours, protect the surfaces from sudden temperature change, direct sun light and water. Don't apply in temperatures below 8°C or above 35°. During application make sure that the work area isn't too damp to avoid problems with application times.

Remember to have a strong light parallel to the wall/floor and situated on only one of the two sides of the wall/floor you are working on (usually on the same side as other sources of light such as windows). In this way the shadow of the trowel allows you to see the actual state of the finish. Every so often, during the second and third coat, the light should be moved so that the wall/floor doesn't dry out too much in one spot from the heat of the lamp.

APPLICATION on the ideal substrate: plaster made of cement and sand

Substrate: A water-based primer, like our UNIVERSAL PRIMER is applied with a roller on a surface free of dirt and grease. If you already have pre-coloured material in your warehouse, use this for all three coats. If you have white material, you can use this for the first coat in order to simplify preparation; it saves time and colourant. Remember that PASTELLONE comes in two versions: MEDIUM for the first coat and FINE for the second and third coats, although many applicators prefer to use MEDIUM for all three layers to get a stronger finish. Mix the material for the first coat with water to make the mixture dense enough to be applied easily with a metal trowel (see dilution instructions above).

First coat: During the application, it is useful to have a light source close to and parallel to the floor. Be careful, however, that this doesn't dry out the material too much before applying the final coat. Spread the first coat evenly over the entire surface, finishing, obviously, at the doorway. You will need approximately 650-700 g of material per square metre. Let it dry until the next day.

Colouring: If you have pre-coloured material, it will be much simpler to apply the second and third coats. If you must add colour to the material, there are three possibilities: 1) Colour the material with powder colourants before adding the water. You must first establish how much colourant is needed to obtain the colour you want to achieve. 2) Colour the white material after you have mixed it with water. You still must do colour tests beforehand to be sure of the exact weight of liquid colourant you will use. You can prepare toners ready to be mixed. 3) Tint all the water that will be used in the tinting process. Solutions 2 and 3 are the more practical. In all the cases, the colourant must be one which is resistant to alkaline environment such as that of cement.

Second coat: Mix up enough material for the second coat (650-700 g. of powder per square meter) of PASTELLONE FINE, and using a metal trowel, start applying it. Have

a clear plan of how you are going to apply it in 40-50 cm strips, beginning at the point farthest from the door. Be careful to apply it uniformly and smoothly.

Third coat: After you finish applying the second coat, you'll have time to prepare the material for the third coat. Note that the third coat can be applied with the same material as the second one. It is difficult to give precise instructions on how long to wait before applying the third coat because it depends on the air temperature and humidity. In general, the moment is right when you can comfortably step on it, which would be after 25 minutes or up to an hour. It is recommended to go barefoot or wear socks that won't leave their imprint on the material. Apply the third coat with the metal trowel as you would a normal MARMORINO but pressing less since you can make it smoother the following day using the sanding machine or sandpaper. You will need approx. 250 g/sqm of dry product for this coat. Note that if your PASTELLONE is tinted white or in a light colour, it is preferable to use our BIANCO TROWEL, a special titanium trowel that doesn't leave any dark mark. If you want to make a smoother finish at this stage, you can complete the whole floor and then, when you can step on it, come back using a spray bottle with water and go over it again with the trowel, working a small area at the time. Spray the water and polish using both a metal trowel and a plastic trowel or, better, using the BIANCO trowel. You will notice that on the floor, you don't need to finish it as smooth and polished as you would on a wall. Besides, it is not possible to return to polish it after 10 or 15 minutes, as you do on a wall. **BE CAREFUL NOT TO LEAVE DROPS OR EXCESS OF WATER ON THE FLOOR OR THEY WILL LEAVE LIGHTER MARKS.**

Polishing: The day after, the floor can be sanded with a sanding machine. This treatment is done to make the surface smoother and to increase the movement of dark and light marks. A P80, P100 or P120 paper can be used. The sandpaper does not scratch the surface since it is very hard, but just polish it.

For a plain finish: The easiest and fastest way to polish PASTELLONE requires the use of a sanding machine with disks of metallic mesh, P100. In this case, you can apply the last coat without pressing too much, just having care to make the floor quite even. Sanding with the metallic disk helps make the surface smooth also if the last coat was not very well done and homogenizes the surface. This application method reduces the working times and results in a more even finish.

For a shaded effect: If you want to have more movement you can apply one or more layers of a coloured solution. After the polishing phase is completed, prepare our UNIVERSAL PRIMER diluted 1 part of primer and 18/20 parts of water. Tint it in the needed tone and, after making a proper test, apply this solution all over the floor using sponges or better normal clothes. In this way, where you leave a more tinted solution you get darker areas, creating "shadows of colour". Please, be careful to make tests before tinting the floor and note that usually one single layer is not enough. To get a harmonious effect you must apply two or more layers.

PASTELLONE with aggregates: Our PASTELLONE can be coloured naturally with small stone chips and marble powders. Not only these aggregates will convey more depth and add to the natural beauty of the finish, but will also make it harder. You can add fine powders, starting from 0.7 grain size up to 1.8 mm stone chips of different shades to the usual PASTELLONE material, and colour the finish without a drop of

colourant paste. It is important to follow the granulometric curve of the aggregates, which should be complete, starting from 0.7 grain size (the grain size of PASTELLONE Medium), up to the desired max chip size. In this technique, PASTELLONE MEDIUM is used for all the three coats, and the aggregates are added to the material used for the second and third coats.

- For aggregates of 0.7-1.2 mm, you can incorporate them up to 25% of the total weight.
- For aggregates ranging from 0.7-1.8 mm, they can comprise up to 30% of the total weight. Ensure a roughly even ratio between the 0.7-1.2 mm and 1.2-1.8 mm sizes.
- When using powders finer than 0.7 mm to colour the finish, limit their addition to no more than 5% of the total weight. If you opt for these fine powders, avoid combining them with larger grain-size aggregates.

Exceeding these quantities can disrupt the balance of the Pastellone formulation, leading to application issues.

The application technique is the same as for a plain PASTELLONE finish, with a few exceptions: Start applying the 3rd coat as soon as you can safely walk upon the 2nd. If you wait too long, the surface will be too hard, and the aggregates of the third coat won't be able to penetrate in the 2nd. During the third coat, every completed 2-3m², go over the surface again, spraying water and passing the trowel over the surface to close the pores. Before polishing, fill the holes with some PASTELLONE material.

The polishing must be done starting with a 40 or 60 grit sanding disc, the surface being very hard.

Warning: Create an environment with the right humidity because the slower the material dries, the stronger it becomes. The floor shouldn't be walked on for several hours and in any case should be protected until you apply the final protection. Without the final protection, the floor can always be easily stained.

*** Notes on substrates:**

ON NEW CONCRETE SCREED: If you are working on a new concrete surface, be sure that it is at least a month seasoned and that it is completely dry. It's possible for cracks to appear in new concrete in the first 3 weeks after laying the concrete.

ON PLYWOOD PANELS: Application on plywood floors is possible, provided that the panels are solidly glued and that the floor substrate is stable. Do not apply on plywood panels that have been screwed and not glued. Screwed panels tend to vibrate. Any movement of the plywood floor will cause cracks on the PASTELLONE finish.

IN SHOWERS: This material can be used in wet areas such as shower walls and steam-bath walls.

ON CERAMIC TILES: Apply one coat of GLP (Gap Levelling Plaster) within the tiles' gaps, and, when this dries, apply a second coat of GLP all over the floor. This method doesn't require you to abrade the ceramic tiles since it is very adhesive, and it fills the gap among the tiles with a single application, as it is a plaster that has no shrinkage.

SUBSTRATE WITH CRACKS: On a cement screed, consider whether the cracks are due to the curing process and not due to settlement movements. If they are due to

settlement movements: First, apply a narrow fiberglass mesh (7-8 cm) along the crack, and fix it to the surface using our GLP. Then, use 100 cm-wide FIBERGLASS mesh (available at STUCCO ITALIANO), placing them side by side without overlapping them, covering the whole floor. If the floor surface is a new screed, you can fix the wide mesh bands to the floor with the first coat of PASTELLONE. On the contrary, if the floor is covered by tiles or marble, you should first fix the mesh with a layer of highly fibrous and adhesive plaster, such as our GLP. When you apply PASTELLONE over a tiled floor, you should pay particular attention to cracks. Sure enough, tiled floors often present cracks. Nevertheless, they are hardly noticeable, as the crack rarely breaks the marble or ceramic tile. Most often, the crack will follow the tiles running along their edges. Usually, the operator does not notice it until the work is finished, when the crack appears clearly over the plaster. The crack on the tiled floor is hardly noticeable, because it follows the edges of the tiles, and it hides in their gaps. For this reason, it is advisable to always apply a mesh on all tiled floors before applying a coating. We especially recommend it when you work on floors located above the ground floor, which, in a building, is the most stable one.

Tips:

TOUCH-UPS: It is possible to do touch-ups when necessary. To do this, we advise keeping some of the powder-coloured material (if you had it) in a well-sealed container. Use a container which is just big enough, so the material is exposed to little air. Doing this should allow you to keep the material ready to use for many years. Or keep note of the formulation to tint the flooring plaster, if you were starting from not tinted material.

WORKING IN ADJACENT ROOMS: If you must work in two adjacent rooms, it is advisable to create a natural break at the doorways. You can't, in fact, work in 2 or 3 rooms at a time without having breaks. One way to deal with this is to put a band of metal (aluminium, steel or brass) into the concrete (screed) substrate which will act as a divider. This band of metal should rise above the surface of the concrete 1.5 -1,7 mm. We use metal blades that are 15 mm high and 3 mm thick, and we fix them after cutting the screed for at least one third of its thickness, which forces the screed to convey any movements along this cut without creating cracks in the other areas.

USE KNEE PADS: Whenever applying products on floor surfaces it is advisable to use knee pads.

BE AWARE OF HEAVY OBJECTS: Dropping heavy objects on the surface can cause small dents, exactly as happens with wood flooring.

Exteriors: For exterior wall applications there are some rules to respect and some precautions to take. We remind you that carbonation, i.e., the process that takes place through the absorption of atmospheric CO₂, is completed in a few hours on the surface but takes several days to take place in depth. It is therefore important that the application takes place in the certainty of the absence of heavy rains in the three following days. It is also not recommended to apply it on walls that do not have at least a small roof overhang. Penetrating rain could ruin the finish even after weeks as deep carbonation is completed after more than a month. Avoid windy days, especially at high temperatures, as well as the risk of frost in the 48 hours following application. In

external applications in hot climate conditions, it is also recommended to protect the wall from the sun with shade cloths applied to the scaffolding. Lime-based products must dry slowly to better fulfil their characteristics.

Finish Protection

INTERIOR: BEESWAX / MINERAL WAX / MARSEILLE SOAP / HYDROCALCE
EXTERIOR: MARSEILLE SOAP / HYDROCALCE
WET AREAS/ FLOOR: PRESEALER + PU1C / PU2C
FURNITURE: PU1C / PU2C

Interior walls: A protective treatment is optional in most circumstances. It is however necessary in bathroom walls, kitchen and splashback walls, and a must inside shower/sauna walls.

Exterior walls: This finish, as all lime-based plasters, absorbs water during rainy weather, which results in a temporary "wet effect" on the surface. However, this plaster releases the absorbed water within a few hours, allowing the surface to dry without any damage nor alteration to the finish. While a final treatment is therefore optional, it is highly recommended in areas with high pollution levels or if you wish to avoid the temporary wet effect that can occur after rainfall. To protect the finish, after at least 72 hours at a minimum of 20°C, proceed with a colourless, penetrating HYDROCALCE, developed to protect exterior plaster coverings.

Interior floors: A protective treatment is necessary. After 2-5 days (the longer, the better), you can apply the final treatment which can be done in two ways:

A) With the application of 2 or 3 coats of PU1C or PU2C (single or dual component polyurethane). This is usually applied with a roller. It should be preceded by a waterproofing and stabilising treatment made with our PRESEALER applied in two coats. This treatment facilitates the application of the varnish and reduces the absorbency of the floor. After the PU varnish you can apply two coats of PROTECTIVE WAX. This third step is not necessary but makes the floor easier to clean.

B) The alternative, Eco treatment is done with ECOTOP, ecological vegetable oil. Pour it on the floor and spread with a soft, absorbent cloth. Remove all excess by spreading sawdust onto the whole floor, or by cleaning it with a cloth. Note that, before applying ECOTOP the floor must be very dry, since the presence of alkaline water could cause the saponification of the oil, leaving white marks on the floor. After 2 days, apply PROTECTIVE WAX in a minimum thickness with a trowel or cloth. Keep in mind from the beginning that this protective treatment will darken considerably the finish, with that which we call a "wet look".

Maintenance

Routine Cleaning

Clean surfaces regularly using a soft cloth and neutral pH, non-acidic detergents. For floors, you can occasionally add a small amount of PROTECTIVE WAX to the cleaning water to help maintain the surface protection.

Re-application of Protective Treatment

The longevity of the protective finish depends on the type of treatment and intensity of use. Here's how to maintain each system:

- PU1C / PU2C

When the varnish begins to show visible wear such as dullness or scratches (typically every 3 to 5 years depending on traffic) it is time to renew the protective

treatment. Thoroughly clean and lightly sand the entire surface, then apply one new coat of PU1C or PU2C according to product instructions.

- **ECOTOP**

Simply reapply a fresh coat of ECOTOP every 5 years. Apply it with a soft cloth, wiping away any excess as per instructions. After two days, follow with a light application of PROTECTIVE WAX using a trowel or cloth.

- **Combination with PROTECTIVE WAX or any other wax**

If a protective wax was used on top of PU or ECOTOP, it must be fully removed before any re-application of those base treatments. This involves more intensive sanding to eliminate wax residue and ensure proper adhesion of the new protective layer.

Tools	SI TROWEL / BIANCO, SCRAPERS, CORNER TROWEL, NON-WOVEN FABRIC Clean with water immediately after use
Decorative complements (optional)	TERRACOTTA MEDIUM / MOTHER OF PEARL / MILLED MARBLE / MICA / GLITTER / EBANO POWDER / METALLIC BEESWAX / PERLA WAX / MARBLE AGGREGATES

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