

PAVIMIX

Self levelling mortars for floors

CT C5..80, F1..50, A22..1,5 self levelling mortars partner guide. *(only for internal use do not divulgate in this form)*

Smart guide writted by Personal Factory Lab team

www.hackthemat.com, www.personalfactory.eu

“What is” a self levelling mortar



- It is a flowable mortar for concrete floors that have the ability to self level without troweling, making them a quick solution for smoothing and leveling worn or uneven concrete.
- It can correct uneven floors, repair damaged concrete, and provide a smooth and durable new surface for decorative treatments.
- **Substrate:** it is the support of all the system. It can be based on cement.
- **Surface Inspection:** The cementitious substrate should be sound, stable, without cracks, and of sufficient strength (min. 25 MPa). Minimum pull off strength 1.5 MPa. Free from grease, oil and contaminants, with no loose or flaky parts.
- **Surface Preparation:** All dust, loose and friable materials must be completely removed. Existing coatings have to be inspected and cleaned to achieve gripping/clinging surface.
- **Priming:** For a integral final top surface it is necessary to apply a suitable primer on the substrate. This is important to avoid that the self levelling system lose its water to give it to

Important characteristics



Flow diameter test

It is a rheological test and it measures the flow capacity of the system. The diameter formed by the fresh mix on a glass surface is correlated to the self leveling capacity. The minimum expansion value of Personal Factory self levelling, measured within 20 minutes, is no less than 110-140 mm.

Important characteristics



Shrinkage and expansion (Volumetric method)

It is connected to the movements due to variations of volume provoked by the hydration of cement. The movements have to be contained in order to avoid crack and detachment. All Personal Factory self levelling are tested with innovative methods that allow to measure, with the precision of $0.01\mu\text{m}$, the volumetric shrinkage or expansion.

Important characteristics



Warping and swelling (Thin layer method)

It measures the variation that are connected to warping (the center of the sample is lower compared with edges) and swelling (the center of the sample is higher compared with edges). The measure of warping or swelling is a very important feature for the thin layer systems. The method is very accurate because it is possible to evaluate the measure with the precision of $0.01 \mu\text{m}$.

Important characteristics



Impact resistant

It measures the resistant to the impact of a weight that drops down from a specific height. The minimum impact energy value of Personal Factory self levelling is not less than 2N m. It means that if a mass of 500g is dropped down from 40cm of height, not cracks or spalling are presented on the surface of the system.

Important characteristics



Abrasion resistant

It measures the loss in weight of the sample of 10 mm height, caused by rotation of two abrading wheels on the sample. The lower the loss, better the abrasion resistance. Personal Factory self levelling systems have a loss in weight less than 1% after 3000 cycles.

Important characteristics



Scratch resistant

It measures the loss in weight of the sample of 10mm height, caused by abrasion of dry or wet brushes and sponges on the sample. It can be carried out to test the detergent resistant. Personal Factory self levelling have a loss in weight less than 1% after 3000 cycles.

Important characteristics



UV resistant

It measures the resistance to the accelerated weathering due to ultraviolet light and spray of water. After 1000 h of accelerated weathering, the Personal Factory self levelling are not damaged and their colors are durables.

Important characteristics



Drop effect

It is the effect due to the repellency water of system. Personal Factory self levelling are formulated so that oil, grease and watery substance are not a problem.

Important characteristics



Salt fog resistant

It measures the resistance to salt fog, exposing the samples to a salt intensive atmosphere for long time. This test is carried on self levelling system to simulate their behavior near to the sea environment. The Personal Factory self levelling does not present damages after long exposures (at least 3-4 months).

Important characteristics



Scrub resistant

It measures the superficial hardness of self levelling. A tungsten tip, load with a specified weight, runs slowly on the surface of the sample. No visual traces are presented on the surface of Personal Factory self levelling using a weight of no less than 500g.

Important characteristics



Bond Strength

It measures the force necessary to separate the system from the substrate when a perpendicular tensile force is applied. It is measured with Pull-off adhesion tester and it is reported in MPa. The bond strength in Personal Factory self levelling is between 1 MPa and 5 MPa.

Important characteristics



Flexural Strength

it is measured by breaking prismatic specimen (160mm x 40mm x 40 mm) in a flexural testing machine. In Personal Factory self levelling, the flexural strength between 7 MPa and 10MPa.

Important characteristics



Compressive Strength

it is measured by breaking cubical specimen (40mm x 40 mm) in a compression testing machine. It represents the failure load divided by the cross section area resisting the load and it is reported in MPa in the SI units. In Personal Factory self levelling, the minimum compressive strength is more than 40MPa.

Important characteristics



Transverse deformation

It measures the degree of flexibility before of transverse failure. It is a very important feature because the floor is subjected to different kind of movement including vibrations, drying shrinkage, ambient humidity or temperature fluctuations, static and dynamic load and deflection stresses. All Personal Factory self levelling have a transverse deformation of at least 15%.

Important characteristics



Deformation due to compression loads

It measures the degree of longitudinal deformation before of failure due to a compression load. Personal Factory self levelling have a longitudinal deformation of at least 20%.

Important characteristics



Bond strength after termal cycles.

It measures the property of a self levelling mortar, when bonded onto a substate, to accommodate cyclic changes in temperature. They are very aggressive cycles because simulate very well the long term durability effects. Personal factory self levelling are tested and resist to three different termal conditions (50 cycles $-15^{\circ}\text{C}/20^{\circ}\text{C}$ where 20°C are under water; 30 cycles $60^{\circ}\text{C}/\text{water spray}$ every 15 minutes where the temperature of the water is 12°C ; 30 cycles of $21^{\circ}\text{C}/-25^{\circ}\text{C}/55^{\circ}\text{C}$). Tolerable visual damages are not present on Personal Factory self levelling and a bond strength between 1 MPa and 4 MPa is evaluated.

Important characteristics



Bond strength after thunder shower cycles (thermal shock).

It measures the property of a repair mortar, when bonded onto a substrate, to weather to heat cycles and cold water spray. It is a very aggressive cycle because it simulates very well the long term durability effects. After 30 cycles of 60°C/water spray every 15 minutes where the temperature of the water is 12°C, visual damages is not present on Personal Factory repair mortars, and a bond strength more than 0,8 MPa is evaluated.

Important characteristics



Bond strength after dry thermal cycles.

It measures the property of a repair mortar, when bonded onto a substrate, to weather to cyclic change in temperature. After 30 cycles of 21°C/-25°C/55°C, visual damages is not present on Personal Factory repair mortars, and a bond strength more than 0,8 MPa is evaluated.

Important characteristics



Compression strength after thermal cycles.

It simulates the long lasting resistance of a self levelling system. Personal factory self levelling do not have reduction of compression strength after three different thermal conditions (50 cycles $-15^{\circ}\text{C}/20^{\circ}\text{C}$ where 20°C are under water; 30 cycles 60°C /water spray every 15 minutes where the temperature of the water is 12°C ; 30 cycles of $21^{\circ}\text{C}/-25^{\circ}\text{C}/55^{\circ}\text{C}$).

Important characteristics



Capillary absorption

It measures the ability of a self levelling to absorb water without application of hydrostatic pressure. In Personal Factory systems, the absorbing power is no more than 10g in 24 hours.

Important characteristics



Fast setting

It is the feature of self levelling used for projects that have to be completed quickly. Personal Factory rapid mortars have a setting time no more than 30 minutes and drying up no more than 60 minutes.

UNI EN classification and rules

Made for real world



Always freshly made product.

We developed the micro-production system to be near to the final user of the material. This because mineral binder based product have all the time the problem of expiry. ISO/ASTM/JTS/BS/SS norms allow to have a term of expiry of 12 months in paper/plastic/paper bag. But depending on certain conditions, after only 3 months it may happen that you lose parts of mechanical resistances.

	Good conditions	Humidity conditions	Hot and humid conditions
1 month – reduction	-	-	5%
3 months - reduction	10%	15%	20%
6 monts - reduction	25%	30%	40%
12 months - reduction	35%	40%	50%

Made for real world



Local standard conditions

We developed the micro-production system to be local worldwide. The reason is that different climates need to have different “standard testing conditions”.

UNI/ISO/ASTM/JTS/BS/SS uses 20 or 25°C as standard conditions.

But depending on conditions you can find in the world, it is better to have standard conditions that change from 12 to 30°C. Our products have been developed to pass the norms in both kinds of conditions: world standard and local standard.

PAVIMIX 40



- ✓ Self levelling mortar for floor used in industry, entry level.
- ✓ It complies with the EU norms
- ✓ Formulations

0,1-0,5 mm dry sand: 45%

Filler <0,063 mm: 16,5%

Portland Cement 42,5 R : 35%

Applications: Formation and repair of industrial floors in areas used for processing and storage with medium-heavy pedestrian traffic.



Special features

- ✓ Fluidity and easy installation
- ✓ No bleeding effect and segregation
- ✓ Indoor
- ✓ Anti slip surface
- ✓ Washable
- ✓ Good mechanical resistance
- ✓ Comply with UNI/EN standard

PAVIMIX 60



✓ Self levelling mortar with high mechanical resistant to the passage of vehicles, universal level

✓ It complies with the EU norms

✓ Formulations

0,1-0,5 mm dry sand: 45%

Filler <0,063 mm: 16,5%

Portland Cement 42,5 R : 35%

Applications: Indoor and outdoor protection to the surface of concrete



Special features

- ✓ High mechanical resistance
- ✓ Anti slip surface and washable
- ✓ Low water absorbtion
- ✓ Good abrasion resistance
- ✓ High thermal shock resistance
- ✓ Good resistance to chemicals such as oil and fuel
- ✓ No cracks due to shrinkage
- ✓ Comply with UNI/EN standard

PAVIMIX 60 COLOR



✓ Colored self levelling mortar with high mechanical resistant to the passage of vehicles, middle quality

✓ It complies with the EU norms

✓ Formulations

0,1-0,5 mm dry sand: 43%

Filler <0,063 mm: 16%

Portland Cement 42,5 R : 36%

Applications: Formation and repair of floors with medium-heavy traffic in shopping malls or car parking



Special features

- ✓ Available in all different colour thank to the innovative spectrophotometric system
- ✓ High mechanical resistance
- ✓ Anti slip surface and washable
- ✓ Low water absorbtion
- ✓ Good abrasion resistance
- ✓ High thermal shock resistance
- ✓ Chemical resistance to oil and fuel
- ✓ No cracks due to shrinkage

PAVIMIX 60 COLOR QUICK



✓ Colored self levelling mortar ultra fast setting with high mechanical resistant to the passage of vehicles, middle level markets

✓ It complies with the EU norms

✓ Formulations

0,1-0,5 mm dry sand: 45%

Filler <0,063 mm: 16,5%

Portland Cement 42,5 R : 35%

Applications: Formation and repair of floors with quickly foot traffic.



Special features

- ✓ Quick setting and drying up
- ✓ Available in all different colour
- ✓ High mechanical resistance after short time
- ✓ Low water absorbtion
- ✓ Good abrasion resistance
- ✓ High thermal shock resistance
- ✓ Chemical resistance to oil and fuel
- ✓ No cracks due to shrinkage

PAVIMIX FF 200



✓ Decorative self levelling colored mortar for high quality floors, high quality level.

✓ It complies with the EU norms

✓ Formulations

0,1-0,5 mm dry quartz sand: 57%

Portland Cement 42,5 R : 29%



Applications: Suitable for decorative application of building for civil use such as public, private, commercial and residential thanks to its mechanical resistances and aesthetic effect characterized by an evident smooth effect.

Special features

- ✓ Fluidity
- ✓ Thin layer without warping or swelling
- ✓ Good deformability
- ✓ Waterproofing
- ✓ High abrasion resistance
- ✓ High mechanical strength
- ✓ Comply with UNI/EN standard

PAVIMIX SCM



✓ Self compacting colored mortar for decorate furnishing with molds

✓ Formulations

0,1-0,5 mm dry sand: 24%

0,5-1,5 mm dry sand: 31%

Filler <0,063 mm: 9%

Portland Cement 42,5 R : 27%



Applications: Suitable for furniture elements such as tanks, shelves and street furniture such as benches.

Special features

- ✓ Non Newtonian fluid: when stirred slowly it looks milky, when stirred vigorously it feels like a very viscous liquid
- ✓ No bleeding and segregation
- ✓ Fast hardening
- ✓ High abrasion resistance
- ✓ High mechanical strength
- ✓ Cementitious high quality objects
- ✓ With Orisemi production system, it is always fresh

PAVIMIX PASTINA



✓ Self compacting colored mortar for decorate furnishing with molds.

✓ Formulations

0,1-0,5 mm dry sand: 24%

0,5-1,5 mm dry sand: 31%

Filler <0,063 mm: 9%

Portland Cement 42,5 R : 27%

Applications: Suitable for furniture elements such as tanks, shelves and street furniture such as benches.

Special features

- ✓ No bleeding and segregation
- ✓ High abrasion resistance
- ✓ High mechanical strength
- ✓ With Origami production system, it is always fresh.

PAVIMIX PASTINA MICRO



✓ Self compacting colored mortar for decorate furnishing with molds.

✓ Formulations

0,1-0,5 mm dry sand: 24%

0,5-1,5 mm dry sand: 31%

Filler <0,063 mm: 9%

Portland Cement 42,5 R : 27%

Applications: Suitable for furniture elements such as tanks, shelves and street furniture such as benches.

Special features

- ✓ No bleeding and segregation
- ✓ High abrasion resistance
- ✓ High mechanical strength
- ✓ With Origami production system, it is always fresh.