Foam concrete for floors, levelling the subfloors, insulations and cavity fillings

Modification: **PBG 25 - 30** / CEM I 42,5R, **PBG 35 - 60** / CEM II 32,5R **Data Sheet No. 137**

Product: Foam concrete of the PBG 25-60 series is a liquid cement mixture lightened by technical foam with self-levelling properties to level any unevenness. It is produced in automatic MS1000 equipment on the construction site or at a concrete plant in standard truck concrete mixers, which need to be thoroughly washed in advance together with the mixing core of the concrete plant.

Utilisation: For manufacturing cohesive levelling layers of civil building floors and any cavity fillings with uniform properties over the entire area. PBG replaces bulk and board filling and insulation materials.
It speeds up and makes floor implementation cheaper, minimising the risk of over-consumption of the screed and floor defects.
A spreading layer is always applied to the PBG layer, possibly with a layer of thermal or acoustic insulation.
Selection of PBG modification according to the type of application and substrate temperature.

Substrate: The subfloor can have any unevenness and be of any material, e.g. reinforced concrete, ceramics, historic vaulted structures, wood, trapezoidal sheets, etc. The substrate must be tight against the leakage of liquids.
Foam concrete of the PBG 25-60 series must not be applied to easily compressible materials, e.g. mineral wool.

Composition: Cement, clean water, technical foam, admixtures, and additives according to SIRCONTEC recipes and instructions.

Properties: The self-levelling, easily pumpable material with the ability to achieve flatness of ±3mm/2m is a thermal insulation that perfectly fills the unevenness of the substrate/subsoil and strengthens it without extraordinary effort or vibrations. After setting, PBG forms a solid and incompressible vapour-permeable class A1 non-combustible cohesive layer with high dynamic stiffness.
As a rule, no expansion joints are necessary.
During setting, uncontrollable shrinkage cracks may occur in PsB, depending on the type of application and the curing method, even beyond the expansion fields. These do not affect the functionality of the layer or filling and are not considered a defect.

Technical specification: PBG 25-30 / **CEM I 42,5R**, PBG 35-60 / **CEM II 32,5R**

Foam concrete	**PBG**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**
Minimum substrate&ambient temperature during app *	°C	20	15	15	12	8	5	5	5
Availability by pumps - Horizontally / Vertically	**m**	**150 / 30**	**250 / 100**	**250 / 100**	**300 / 100**	**300 / 100**	**300 / 80**	**300 / 50**	**300 / 50**
Min. / Max. PBG application thickness (approximate)	mm	45 / 300	45 / 400	40 / 400	35 / 400	30 / 400	30 / 400	30 / 400	30 / 400
Walkability at 20°C	hod	< 72	< 72	< 72	< 56	< 48	< 24	< 24	< 24
Plastic density	**kg/m³**	**350 - 400**	**410 - 460**	**460 - 520**	**520 - 570**	**570 - 620**	**620 - 670**	**680 - 730**	**710- 770**
Consistency of fresh mixture - spill test	cm	17 - 19	18 - 20	18 - 20	18 - 20	18 - 20	18 - 20	18 - 20	18 - 20
Density after 28 days	kg/m³	240 - 280	280 - 330	330 - 380	380 - 430	430 - 480	480 - 530	530 - 580	580 - 630
Natural humidity	% hm.	8 - 15	8 - 14	8 - 12	8 - 12	8 - 12	8 - 12	8 - 12	8 - 12
Min. compressive strength after 28 days/20° - f_c *1	**MPa**	**0.38**	**0.65**	**0.45**	**0.70**	**1.00**	**1.10**	**1.25**	**1.40**
f_c after 3 days / 20°C - Minimally	MPa	0.18	0.30	0.22	0.35	0.5	0.55	0.60	0.65
Maximum λ of dry material	**W/mK**	**0.080**	**0.083**	**0.090**	**0.110**	**0.120**	**0.130**	**0.150**	**0.170**
Calculation value of the coef. of thermal conductivity λ	W/mK	0.150	0.153	0.160	0.180	0.190	0.200	0.220	0.240

* Minimum external temperature for PBG production, transport and pumping is **-5**°C and Max. processing time from its production is **120** min.
***1** Requirement for higher compressive strength must always be consulted before starting foam concrete production.

Quality control:
On the construction site, the density in the fresh state and the consistency by spilling are checked according to the SIRCONTEC Control Procedures. The density and compressive strength are measured on test bodies at 28 days during the proving test.
The most frequently used modifications of foam concrete - PBG 35-50 are certified building materials - Technical Assessment TSÚS SK TP-14/0118 issued on 06.10.2014. The complete Technical Assessment is available upon request.

Processing:

1. Substrate: Before starting work, it is necessary to check its cohesion, tightness and moisture. It must be free of coarse dirt and moistened (sprinkled) without standing water. Separating the PBG from the walls with a non-absorbent, flexible material is necessary.

2. PBG installation:
The fresh PBG mixture is transported to the installation site by a pump or poured onto it directly from the chute of the truck mixer. As in processing a self-levelling screed, a shaking rod and a straight edger are used to level the PBG surface while permanently checking the thickness of the poured material. PBG must not be vibrated; during the setting period, vibrations should not affect it.

3. Maturing: The surface of PBG needs to be protected from premature evaporation of mixing water caused by direct sunlight, drafts and wind, similar to other cement mixtures. Spraying with water is suitable. Foam concrete in floor compositions is not intended as a top layer finish.

4. Construction site features for PBG application when using MS 1000 or Truck mixers:

Electrical connection - MS1000:	400 V/50 Hz, the breaker according to MS1000 configuration - min. 25A-B or 32A-C
Drinking water source - MS1000:	min. 3/4" yielding min. 2 l/sec
Access:	the road must be passable at least for a light truck (MS1000) or a truck mixer with a weight of up to 25t, and a place for a pump with dimensions of about 4×2m must be available

Cleaning: Tools are cleaned with clean water. Dirty surfaces can be cleaned by wiping off the fresh mixture or removing the hardened mixture mechanically. Residues are disposed of as usual ňcement waste by recycling or landfilling.

Safety and hygiene:
In its fresh state, it reacts alkaline. When working, it is necessary to protect the eyes and skin. Immediately rinse the affected area with clean water. When complications occur, seek medical help immediately. Keep out of reach of children when it is fresh. After maturity, the mixture is hygienically harmless.

Validity: from 1.02.2023
(the previous DS becomes invalid with the new edition)

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