POLARBETON
concrete insulation

WHAT IS POLARBETON?

POLARBETON is lightweight concrete produced with POLARFOX foaming agent and used as lightweight fills and heat insulation concrete.
POLARBETON is cement based and has high insulation capacity.
POLARBETON is especially used in ground filling and also can be used as floor heat insulations.

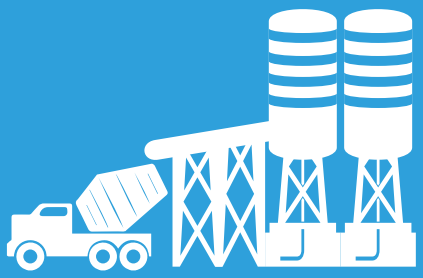
HOW DOES IT INSULATE?

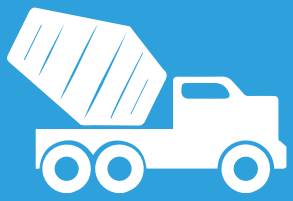
With special aerating agent POLARFOX, strong air cells are created in concrete matrix. Those air cells provide much lighter concrete than regular concrete and also prevents conveyence of heat between layers.
Air cells inside POLARBETON also helps sound insulations in some levels.

HOW IS IT PRODUCED?

POLARBETON has 3 steps during production process.

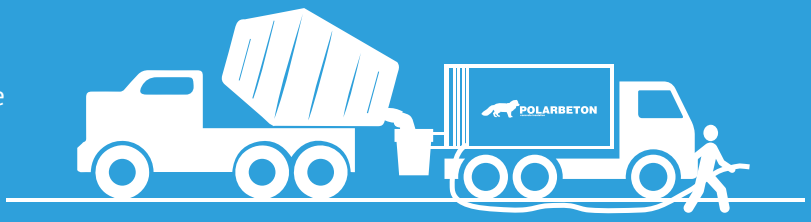
1 A special design of cement paste is provided from a ready mix concrete plant. Cement mixture is brought to site by truck mixer.





2 Cement Paste is transferred from truck mixer to POLARBETON machine in construction site and POLARBETON is produced by foam generators and special mixers.

3 POLARBETON produced in POLARBETON machine is pumped to site for filling or to finalize final levelling of slab for insulation and topping level.



ADVANTAGES

GREEN BUILDING

Polarbeton is environment friendly with ingridients and raw materals.

Insulation capacity of POLARBETON provides energy savings in buildings by conservation of heat and uses less amount of cementitious materals thanks to air voids inside matrix.

EASE OF APPLICATION

POLARBETON is applied in one step and that's all. For filling it is pumped to the filling area and contrary to other filling materals it does not need any compaction or any other steps for filling. Also for floor toppings POLARBETON is easy to apply contrary to EPS/XPS insulation materals, since any other layers are not needed or seperate materials are not combined during application.

TURNKEY SERVICE

POLARBETON is provided as final product for both filling and topping. Final treatments are done by POLARBETON team.

LIGHTWEIGHT

POLARBETON has weight starting from 400 gr/cbm, thus it provides almost 6 times lighter structure than regukar concrete. Also it provides lighter and stronger fills comparing to soil or other filling materals.

SUSTAINABLE

POLARBETON is sustainable product for insulation and filling. Service life of Polarbeton is as long as service life of other concrete structures. Any maintenance or repair is needed during service life of POLARBETON. Thus, POLARBETON also provides long term economical advantages.

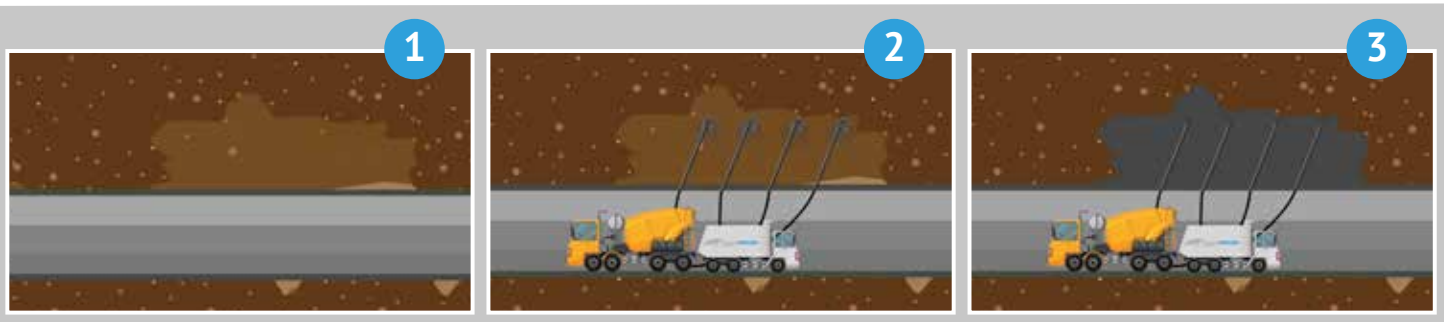
FILLING CONCRETE FIELD OF USE

POLARBETON, with 1/6 weight of normal concrete, is excellent filling materals comparing to concrete or soil fills. Ingredients are cement, water and POLARFOX foaming agent, with that mixture high volumes of stable air cells created inside concrete and higher volumes are applied with POLARBETON.

- Elevated Floors
- Underground Voids
- Tunnel Gaps
- Shafts And Canals
- Soil Stabilisation Works




Density	Compressive Strength
kg/m3	kg/cm2
300	7,5
350	9
400	10
450	12,5
500	15
550	17,5
600	20
650	22,5
700	25
750	27,5
800	30
850	33,5
900	37,61
950	41,67
1000	45,75
1050	49,8
1100	53,86
1150	57,92
1200	62,5



Underground Void Fill

Shaft and Ground Fill

HEAT INSULATION

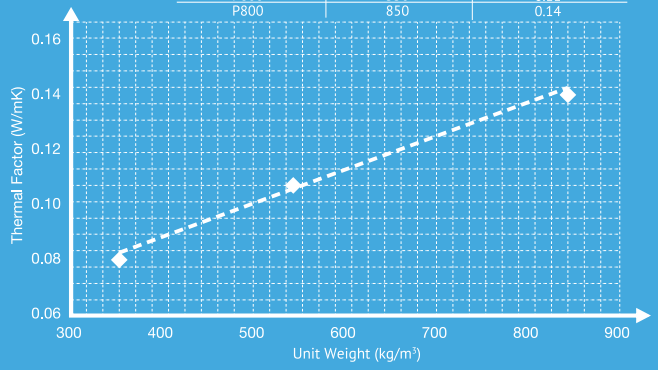
Conventional Heat Insulations
- Service life is between 5-10 years.
- Slope applications are generally not possible
- Expensive
- Workmanship is expensive
- Not efficient for filling the gaps.
- Fire resistance is low
- Compression Strength is low
- Needs regular concrete cover for protection.

Advantages of Polarbeton for Floor Insulation
- Much higher strength than XPS or EPS
- 6 times lighter than conventional topping concrete
- Provides continuous insulation
- Can be applied to floors that are not smooth
- High fire strength
- Much higher service life
- Lower cost

6 times lighter | High Fire Resistance | Efficient Void Filling | Slope Application | Time Economy | Cost Advantage

TABLE 1	ASTM METHOD	POLARBETON TEST RESULTS			
TEST		A	B	C	D
DRY DENSITY	C-796	400	480	560	640
WET DENSITY	C-796	560	640	720	800
THERMAL INSULATION COEF. "k" (W/m 'C)	C-518	0,09	0,1	0,11	0,13
SPLITTING TENSILE STRENGTH (kg/cm2)	C-796	1,2	1,8	2,6	3,7
Burning	E-84	-	-	-	-
Thermal Expansion	C-157	0,0005	0,0006	0,0007	0,0008
Loss of Volume During Pump	C-796	Less than 4,5% by Volume			
Water Absorption		Less than 20% by Volume			
Drying Shrinkage		Less than 0,08%			

Polarbeton®	Unit Weight (kg/m³)	Thermal Factor λ, (W/mK)
P400	350	0.08
P600	550	0.11
P800	850	0.14



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