CE

POLITERM® BLU

ULTRA LIGHT THERMAL INSULATING AGGREGATES FOR THE PREPARATION OF LIGHTWEIGHT BOUND EPS (BEPS) MORTARS

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Ultra-light thermal insulating aggregates for the preparation of ultra-lightweight and highly thermal insulating Bound EPS (BEPS) mortars for thermal and/or sound insulation on roofs & floors certified with **CE** with **the ETA 24-0636*** (*type Politerm 200) and with the German premium quality certification **RAL**

COMPOSITION	High quality expanded close-cell virgin polystyrene (EPS) beads **(Ø 3-6mm)**, perfectly spherical, with controlled density, non-toxic, non-absorbent, rotproof, dimensionally stable over time, free of chloro-fluorocarbons (CFC, HCFC και HFC) and nutritional values able to sustain the growth of fungi and bacteria. In the production phase, the beads are mixed with special additives which allow for their perfect mixing with the water binder, for the elimination of the bead floating phenomenon and for guaranteeing their homogenous distribution in the mix.
PACKAGING AND STORAGE	• Bag of 420 L (2 bags = 1 m^3 of finished BEPS mortar) • Bag of 170 L (5 bags = 1 m^3 of finished BEPS mortar) • Store the product in its original closed package and keep it away from water and humidity. Store the material in a dry, well-ventilated area, away from frost, heat sources and direct exposure to sunlight.
FIELD OF APPLICATION	• Thermal insulation on walkable and semi-walkable roof/terraces/verandas/balconies (with or without simultaneous gradient formation). Suitable for the direct adhesion of hot applied bituminous membrane. • Ultra-lightweight thermal insulating base screeds (with or without simultaneous gradient formation), on pitched or flat roofs, domed or vaulted roofs, metal roofs etc. • Thermal insulation on non-walkable roofs. • Thermal insulation and/or lightweight screeds of very high thickness. • Floor thermal insulation between different stories/floors above closed non heated spaces/floors above pilotis. • Thermal insulation substrates below underfloor heating. • On ground thermal insulation/underneath industrial flooring/underneath asphalt. • Mortar for Flex house system and for thermal insulation bricks with EPS aggregates
CONSUMPTION/YIELD	For 1m^3 of finished BEPS mortar you will need: • 2 bags of Politerm Blu 420 L + water + cement* • 5 bags of Politerm Blu 170 L + water + cement* ** See dosages*

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SURFACE PREPARATION

- Clean the laying surface thoroughly. Completely remove the dust and fragments and residue of any kind.
- Prepare the leveling points.
- For absorbent surfaces: Wet the surface without leaving puddles.
- For highly absorbent surfaces: Proceed with the perfect cleaning of the surface. Completely remove the dust. Apply a grout which will serve as an adhesive layer and an absorbing reducing layer composed of cement/Tektoprimer/clean water (Tektoprimer/water ratio 1:1). After drying, wet the surface and proceed with the application of Politerm Blu.
- Non-absorbent surfaces: Do not wet the surface. Apply a metal mesh, properly anchored to the surface and have some space from it.
- Single layer screeds for direct gluing or tiles: Use the special PVC guides Piano Zero.

MIXING AND PUMPING

Use only CEM I and CEM II Portland type cement which has been stored properly according to the law/regulations. Different cements of poor quality can affect the functionality of the special additives of the Politerm Blu beads. This will make the mixing and pumping difficult, and it will result in different final properties which may result in the mortar being not compliant.

Dosages for obtaining 1m^3 of thermal insulating Bound EPS (BEPS) mortar				
Type	**Politerm bags**	**Water L**	**Cement Kg**	**Sand***
175	2 bags of 420L ή 5 bags of 170L	90-100	150	Not necessary
200		100-120	175	
250		120-140	225	
300		140-160	275	
350		160-180	325	

*Sand is not required because of the mixing properties of Politerm Blu. Sand may however be used but be aware that the addition of sand will reduce the performance in terms of lightening, thermal insulation, and water retention. If you use sand, the water dosages will vary depending on the amount of sand and its residual moisture

- **Mixing: the mortars made with Politerm Blu can be mixed with:**
  - ✓ Cement mixer
  - ✓ Horizontal mixer

- **Mixing & pumping:** the mortars made with Politerm Blu can be mixed and pumped with:
  - ✓ Machine for cellular concrete and/or specialized equipment type Politerm Machine and/or Poliplus Machine (contact our technical department)
  - ✓ Pump type “Turbosol” and/or “Putzmeister” for sand and cement screeds)
- **Order of adding the components in the Politerm Machine:**
  1. Switch on the mixer
  2. Add the needed water according to the type chosen
  3. Add 1 bag of Politerm Blu
  4. Add the necessary quantity of cement
  5. Add the second bag of Politerm Blu
  6. Mix for 10 minutes (loading time included) before pumping
- **Using antifreeze:** For temperatures less than +5^{o}C it is recommended to add liquid antifreeze to the dosages recommended by the manufacturer. Any use of antifreeze additive is compatible with the physical-chemical properties of Politerm Blu.
- **Single layer screeds for direct gluing of tiles**: Consult the “Politerm Blu application manual” or contact our technical department.

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WARNINGS	• Do not apply with temperatures less than +5 °C or above +35 °C. • It is recommended to lay edge strips for acoustic insulation, wider than the floor covering. • **Minimum thickness:** a) *Absorbent surfaces:* 5cm. For less thickness contact our technical department b) *Non-absorbent surfaces:* consult the "*application manual*" or contact our technical department. For detailed information consult the "Application manual" *(available upon request)* or contact TEKTO's technical department. Do not wet the mortar. Protect the mortar from rain for the first 24 hours. Mix only with clean water of drinking water quality. Mix the whole bag at once. Do not separate the bag into smaller batches.
APPLICATION DETAILS	Consult the application manual. Special circumstances may be present on the job-site which are beyond the scope of this data sheet and/or the application manual. Consult the supervisor engineer, or contact TEKTO HELLAS S.A.
CERTIFIED APPLICATORS	Consult the application manual. Special circumstances may be present on the job-site which are beyond the scope of this data sheet and/or the application manual. Consult the supervisor engineer, or contact TEKTO HELLAS S.A.
CERTIFICATIONS	Politerm Blu is **CE certified** according to **EOTA** with the **ETA 24-0636** from **MIRTEC** for the POLITERM 200 recipe. It is also certified according to the Greek and European standart **ELOT EN 16025-1** and with the **German state certificate of higher quality RAL** from the **German notified body GSH** (**EU notification number No 0919**). For its environmental performance, the product has anι **EPD** certified by **TUV**. For its **VOC emissions** it has a certificate from **Instituto Giordano** (see relevant part of this TDS). The company is certified according to **ISO 9001** from **DQS HELLAS**. It is advised, the application of Poiliterm Blu to be undertaken by certified stuff according to the guidelines of TEKTO HELLAS s.a.

TECHNICAL CHARACTERISTICS POLITERM BLU 200

CE certification according to ETA24-0636 for Politerm 200

Dry density	190Kg/m^3 (±15%)	ΕΛΟΤ EN 1097-3
Density of fresh mortar	230Kg/m^3 (±15%)	ΕΛΟΤ EN 1015-6
Bound EPS density	210Kg/m^3 (±15%)	ΕΛΟΤ EN 1602
Thermal conductivity $\lambda_{10,\,dry}$	0,065W/m^{2}K	ΕΛΟΤ EN 12667
Thermal conductivity $\lambda_D = \lambda_{(23,50)}$	0,067W/m^{2}K	ΕΛΟΤ EN 12667
Compressive strength in **kPa**	320 kPa	ΕΛΟΤ EN 826
Reaction to fire	A2-s1, d0	ΕΛΟΤ EN 1606
Water vapour diffusion resistance factor, **μ**	9,3	ΕΛΟΤ EN 12431
Water vapour diffusion – equivalent air layer thickness, **Sd,** m	0,427	ΕΛΟΤ EN 12431
Density of water vapour flow rate, **g**, kg/(m^2·s)	2.410	ΕΛΟΤ EN 12431
Water vapour permeance, **W**, mg/(m^2·h·Pa)	1,7	ΕΛΟΤ EN 12431
Water vapour permeability, **δ**, mg/(m·h·Pa)	0,079	ΕΛΟΤ EN 12431
Dimensional stability 60ºC-90%RH-48h	Δεl=0,1%, Δεβ=0,1%, Δεd=-0,1%	ΕΛΟΤ EN 1604

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Deformation at 20kPa, 80°C – 48h	ε_2=0,32%	ΕΛΟΤ EN 1605
Point load, F_p, 5mm deformation	2.250 N	ΕΛΟΤ EN 12430
Compressive creep	ε_{c10a}=0,37%, ε_{10a}=0,48%	ΕΛΟΤ EN 13501-1
Compressibility	1,8mm	ΕΛΟΤ EN 12086
EPS particle size distribution - Amount of dust	PS5(N) - D0	ΕΛΟΤ EN 933-1
Water absorption	W_p=1.78 Kg/m^2	ΕΛΟΤ EN 1609
Impact sound reduction	ΔL_w=18dB	ΕΛΟΤ EN 717-2
Dynamic stiffness, **s'**, σε 5cm	270 MN/m^3	ΕΛΟΤ EN 29052-1
Moisture sorption	$u_{23,50}$ = 0,013 [Kg/Kg] $u_{23,80}$ = 0,065 [Kg/Kg]	ΕΛΟΤ EN ISO12571
Specific heat capacity	1000J/kgK	-
Residual moisture after 28 days	<2% (thickness 5 cm, absorbent surface)	-

TECHNICAL CHARACTERISTICS

CHARACTERISTICS	TYPE			
	175	**250**	**300**	**350**
Bound EPS density, **Kg/m³** (ΕΛΟΤ EN 1602)	200	275	330	390
Thermal conductivity λ_D **W/m²K** (ELOT EN 12667 & 16025-1)	0,059	0,074	0,084	-
Average thermal conductivity λ_{mean} **W/m²K** (ELOT EN 12667)	0,054	0,072	0,079	0,110
Thermal conductivity $\boldsymbol{\lambda_{23,50}}$ 23°C with 50% humidity (ELOT EN 12667)	-	-	-	-
Compression strength, **MPa (N/mm²)**	-	0,84	1,32	1,94
Compression strength, **kPa**	-	840	1.320	1.940
Flexural strength, **MPa (N/mm²)**	-	0,48	0,51	0,53
Average compression strength in 10% deformation, 5cm samples, **kPa** (ELOT EN 826)	210	487	789	-
Average compression strength in 10% deformation, 30cm samples, **kPa** (ELOT EN 826)	238	512	714	-
Reaction to fire (ELOT EN 13501-1)	A2-s1, d0			
Water vapour permeability, **μ** (ELOT EN 12086)	5-20			
EPS granulometry – Amount of dust (ELOT EN 933-1)	PS5(N) - D0			
Specific heat, **J/kgK**	1000			
Shrinkage, **mm/m**	n.a.	n.a.	0,352	0,270
Resistance to moisture	Rotproof			
Residual moisture after 28 days	<2% (5 cm thickness, absorbent surfaces)			

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Assessment of VOC emissions according to EN 16516	

Regulation	Results
French VOC regulation	
French CMR components	Complies
Italian CAM edilizia	Complies
ABG/AgBB	Complies
Belgian regulation	Complies

ECOLOGY – INVIROMENTAL FOOTPRINT

- ✓ Very high thermal insulating abilities ➲ Less material thickness to achieve the thermal requirements of a building structure
- ✓ Positive environmental footprint ➲ The energy savings the product offers exceed the energy required for its production.
- ✓ Reduced water needs ➲ Its special composition has significantly reduced mixing water needs. It does not absorb, nor retains water like other mortars.
- ✓ Extremely lightweight for transport ➲ Reduced environmental footprint of transport.
- ✓ Extremely lightweight ➲ Significantly contributes in the reduction of "dead" loads of a construction, increasing in that way the anticipated lifetime of old structures/renovations.

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