



# POLITERM<sup>®</sup> BLU FEIN

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

## POLITERM<sup>®</sup> BLU FEIN

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

<p><b>COMPOSITION</b></p>	<p>High quality expanded close-cell virgin polystyrene (EPS) beads (<math>\varnothing</math> 2mm), 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.</p>
<p><b>PACKAGING AND STORAGE</b></p>	<ul style="list-style-type: none"> <li>● Bag of 420 L (2 bags = 1 m<sup>3</sup> of finished BEPS mortar)</li> <li>● Bag of 170 L (5 bags = 1 m<sup>3</sup> of finished BEPS mortar)</li> <li>● 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.</li> </ul>
<p><b>FIELD OF APPLICATION</b></p>	<ul style="list-style-type: none"> <li>● 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.</li> <li>● Ultra-lightweight thermal insulating base screeds (with or without simultaneous gradient formation), on pitched or flat roofs, domed or vaulted roofs, metal roofs etc.</li> <li>● Thermal insulation on non-walkable roofs.</li> <li>● Thermal insulation and/or lightweight screeds of very high thickness.</li> <li>● Floor thermal insulation between different stories/floors above closed non heated spaces/floors above pilotis.</li> <li>● Thermal insulation substrates below underfloor heating.</li> <li>● On ground thermal insulation/underneath industrial flooring/underneath asphalt.</li> <li>● Mortar for Flex house system and for thermal insulation bricks with EPS aggregates</li> </ul>
<p><b>CONSUMPTION/YIELD</b></p>	<p>For 1m<sup>3</sup> of finished BEPS mortar you will need:</p> <ul style="list-style-type: none"> <li>● 2 bags of Politerm Blu Fein 420 L + water + cement*</li> <li>● 5 bags of Politerm Blu Fein 170 L + water + cement*</li> </ul> <p>* See dosages</p>



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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 Fein.
- 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.

Use only CEM I and CEM II Portland type cement which have 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 Fein 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<sup>3</sup> of thermal insulating Bound EPS (BEPS) mortar

Type	Politerm bags	Water L	Cement Kg	Sand*
175	2 bags of 420L	90-100	150	Not necessary
200		100-120	175	
250	5 bags of 170L	120-140	225	
300		140-160	275	
350		160-180	325	

\*Sand is not required because of the mixing properties of Politerm Blu Fein. 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 AND PUMPING

- **Mixing: the mortars made with Politerm Blu Fein can be mixed with:**
  - ✓ Cement mixer
  - ✓ Horizontal mixer
- **Mixing & pumping:** the mortar made with Politerm Blu Fein can be mixed-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 Fein
  4. Add the necessary quantity of cement
  5. Add the second bag of Politerm Blu Fein
  6. Mix for 10 minutes (loading time included) before pumping
- **Using antifreeze:** For temperatures less than +5°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 Fein.
- **Single layer screeds for direct gluing of tiles:** Consult the “Politerm Blu application manual” or contact our technical department.



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<b>WARNINGS</b>	<ul style="list-style-type: none"> <li>Do not apply with temperatures less than +5 °C or above +35 °C.</li> <li>It is recommended to lay edge strips for acoustic insulation, wider than the floor covering.</li> <li><b>Minimum thickness:</b> <ol style="list-style-type: none"> <li><i>Absorbent surfaces:</i> 5cm. For less thickness contact our technical department</li> <li><i>Non-absorbent surfaces:</i> consult the “application manual” or contact our technical department.</li> </ol> </li> </ul> <p>For detailed information consult the “Application manual” (available upon request) or contact TEKTO’s technical department.</p> <p>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.</p>
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<b>APPLICATION DETAILS</b>	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.
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<b>CERTIFIED APPLICATORS</b>	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.
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<b>CERTIFICATIONS</b>	<p>Politerm Blu Fein is <b>CE certified</b> according to <b>EOTA</b> with the <b>ETA 24-0636</b> from <b>MIRTEC</b> for the POLITERM 200 recipe. It is also certified according to the Greek and European standart <b>ELOT EN 16025-1</b> and with the <b>German state certificate of higher quality RAL</b> from the <b>German notified body GSH (EU notification number No 0919)</b>. For its environmental performance, the product has an <b>EPD</b> certified by <b>TUV</b>. For its <b>VOC emissions</b> it has a certificate from <b>Instituto Giordano</b> (see relevant part of this TDS). The company is certified according to <b>ISO 9001</b> from <b>DQS HELLAS</b>. It is advised, the application of Politerm Blu to be undertaken by certified stuff according to the guidelines of TEKTO HELLAS s.a.</p> <div style="display: flex; justify-content: space-around; align-items: center;">        </div>
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<b>TECHNICAL CHARACTERISTICS POLITERM BLU FEIN 200</b>  CE certification according to ETA24-0636 for Politerm 200	Dry density	190Kg/m <sup>3</sup> (±15%)	ELOT EN 1097-3
	Density of fresh mortar	230Kg/m <sup>3</sup> (±15%)	ELOT EN 1015-6
	Bound EPS density	210Kg/m <sup>3</sup> (±15%)	ELOT EN 1602
	Thermal conductivity λ <sub>10, dry</sub>	0,065W/m <sup>2</sup> K	ELOT EN 12667
	Thermal conductivity λ <sub>D</sub> =λ <sub>(23,50)</sub>	0,067W/m <sup>2</sup> K	ELOT EN 12667
	Compressive strength in <b>kPa</b>	320 kPa	ELOT EN 826
	Reaction to fire	A2-s1, d0	ELOT EN 1606
	Water vapour diffusion resistance factor, μ	9,3	ELOT EN 12431
	Water vapour diffusion – equivalent air layer thickness, <b>S<sub>d</sub></b> , m	0,427	ELOT EN 12431
	Density of water vapour flow rate, <b>g</b> , kg/(m <sup>2</sup> ·s)	2.410	ELOT EN 12431
	Water vapour permeance, <b>W</b> , mg/(m <sup>2</sup> ·h·Pa)	1,7	ELOT EN 12431
	Water vapour permeability, <b>δ</b> , mg/(m·h·Pa)	0,079	ELOT EN 12431
Dimensional stability 60°C-90%RH-48h	Δεl=0,1%, Δεβ=0,1%, Δεd=-0,1%	ELOT EN 1604	

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**TECHNICAL CHARACTERISTICS  
POLITERM BLU FEIN 200**

CE certification according to  
ETA24-0636 for Politerm 200

Deformation at 20kPa, 80°C – 48h	$\epsilon_2=0,32\%$	ΕΛΟΤ EN 1605
Point load, $F_p$ , 5mm deformation	2.250 N	ΕΛΟΤ EN 12430
Compressive creep	$\epsilon_{c10a}=0,37\%$ , $\epsilon_{10a}=0,48\%$	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	$W_p=1.78 \text{ Kg/m}^2$	ΕΛΟΤ EN 1609
Impact sound reduction	$\Delta L_w=18\text{dB}$	ΕΛΟΤ EN 717-2
Dynamic stiffness, $s'$ , $\sigma \epsilon$ 5cm	270 MN/m <sup>3</sup>	ΕΛΟΤ EN 29052-1
Moisture sorption	$u_{23,50} = 0,013 \text{ [Kg/Kg]}$ $u_{23,80} = 0,065 \text{ [Kg/Kg]}$	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, <b>kg/m<sup>3</sup></b> (ΕΛΟΤ EN 1602)	200	275	330	390
Thermal conductivity $\lambda_D$ <b>W/m<sup>2</sup>K</b> (ΕΛΟΤ EN 12667 & 16025-1)	0,059	0,074	0,084	-
Average thermal conductivity $\lambda_{\text{mean}}$ <b>W/m<sup>2</sup>K</b> (ΕΛΟΤ EN 12667)	0,054	0,072	0,079	0,110
Thermal conductivity $\lambda_{23,50}$ 23°C with 50% humidity (ΕΛΟΤ EN 12667)	-	-	-	-
Compression strength, <b>MPa (N/mm<sup>2</sup>)</b>	-	0,84	1,32	1,94
Compression strength, <b>kPa</b>	-	840	1.320	1.940
Flexural strength, <b>MPa (N/mm<sup>2</sup>)</b>	-	0,48	0,51	0,53
Average compression strength in 10% deformation, 5cm samples, <b>kPa</b> (ΕΛΟΤ EN 826)	210	487	789	-
Average compression strength in 10% deformation, 30cm samples, <b>kPa</b> (ΕΛΟΤ EN 826)	238	512	714	-
Reaction to fire (ΕΛΟΤ EN 13501-1)	A2-s1, d0			
Water vapour permeability, $\mu$ (ΕΛΟΤ EN 12086)	5-20			
EPS granulometry – Amount of dust (ΕΛΟΤ EN 933-1)	PS5(N) - D0			
Specific heat, <b>J/kgK</b>	1000			
Shrinkage, <b>mm/m</b>	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.

All the indications provided in this technical data sheet are purely approximate and are not binding for legal purposes. The data listed herein have been gathered from laboratory tests meaning that in practical applications on building sites the final characteristics of the product may be subject to substantial variations depending on the meteorological conditions and the installation. The user must always check the suitability of the product for its specific use, undertaking all liability implicit in and deriving from the use of the product, as well as comply with all methods and instructions for use generally referred to as “workmanlike” execution. TEKTO HELLAS S.A. reserves the right to change the contents of this technical data sheet on its final judgement without any notification. The distribution of this data sheet supersedes and cancels the validity of any other data sheet published previously.



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