TERAPOR® NP-25

facade thermal and noise insulation boards from graphite EPS with increased thermal insulation properties and pressure strength, as an element of an integrated thermal insulation system

Scope of use

TERAPOR® NP-25 is a high quality self-extinguishing thermal insulation material from graphite expanded polystyrene (EPS), cut in the shape of boards. The boards are with improved thermal insulation capabilities and strength properties and they are extremely suitable and optimized for thermal insulation of facades as an element of an integrated thermal insulation system. They are recommended for suspended and ventilated facade mounting or as a thermal insulation built in the construction. They are suitable for thermal insulation of inner walls, bordering non-heated spaces and where there is a constructive requirement for greater pressure strength.

The material is particularly apt for low-energy and passive buildings. The graphite integrated into the structure of the EPS increases the thermal insulation capabilities of the boards with over 20% in comparison with the regular one. The material has very good vapour permeability and its structure allows “breathing” of the building construction, and in this way effectively helps prevent condense and mold accumulation in it and also in the premises. The boards have accurate dimensions and are resistant to ageing. They do not change their shape and do not shrink.

TERAPOR® NP-25 is an element of the integrated thermal insulation system TERAPOR® ULTRA and is suitable both for newly erected buildings, so as for already existing buildings – in the process of their renovation and thermal insulation improvement.

When mounting thermal insulation at the wall base area, TERMOFLEX® EPS W-40, TERMOFLEX® XPS or TERAPOR® XPS should be used.

Properties	
with increased strength and mechanic properties, optimized for thermal insulation of facades with subject to high loading pressure, especially suitable for low-energy buildings and passive houses	
good thermal insulation properties	self-extinguishing, do not deform or shrink
high vapour permeability	do not contain harmful components
allow for “breathing” of the wall	do not absorb water and resistant to ageing

Composition

Thermal insulation boards form expanded polystyrene granules with graphite coating.

Packaging and Indicative consumption

Package:

Package foiled boards.
- width of the boards: 500 mm
- length of the boards: 1000 mm
- thickness of the boards: 10 - 600 mm

Indicative consumption:

1 m^2/m^2

board thickness (mm)	10	20	30	40	50	60	70	80	90	100
boards within 1 package (pcs)	55	29	19	14	11	10	8	7	6	6
within 1 package (m2)	27,5	14,5	9,5	7,0	5,5	5,0	4,0	3,5	3,0	3,0
within 1 package (m3)	0,275	0,290	0,285	0,280	0,275	0,300	0,280	0,280	0,270	0,300

Expiration date and Storage

Store in a dry and cool place, at a minimum distance of 1,5 m from heating objects.

Keep away from UV rays (direct sunlight), moisture and mechanical damages!

Instructions for Use

Base Preparation

The base on which thermal insulation boards TERAPOR® NP-25 are to be mounted should be clean, dry and stable, without cracks and leveled in advance. It should be strong, bearing and should not contain separating substances (grease, bitumen, dust). All flimsy areas and layers with low mechanical resistance should be preliminary removed. Irregularities greater than 20 mm should be leveled with lime-cement rough coat TERAFLEX® MASTER FIX three days prior to mounting of thermal insulation boards. All types of dirt, leftovers from separating substances and vapour impermeable paint coverings should be completely removed (with high pressure sprayer). Areas covered with mould and mildew should be mechanically scrubbed (with a steel wire brush), and then disinfected with a proper detergent. Carbonized areas of the base should be swept and brushed off. Old walls without any coverings or with strong enough coverings should be dusted off with a brush, pressure washed with water and then let dry completely. When working with bases steeped with moisture, the source of moisture should be removed and then the base should be let dry completely.

All slightly crumbly and sandy bases should be primed and strengthened with NANOGRUND® – DEEPLY PENETRATING PRIMER WITH NANO PARTICLES at least 4-5 hours prior to bonding. Highly absorbent bases (lightweight concrete walls or gypsum blocks) should be primed with POPOGRUND® – POROUS BASE PRIMER. Priming is not necessary when having gypsum boards, cement plasters and mortars (plastered at least 1 month prior), concrete (poured at least 3 months prior).

When mounting thermal insulation boards on areas subject to high water pressure (base boards, ground and underground walls, roofs, terraces and others), the installation of hydro insulation system HYDRO and SPLIT PROTECTION^2 is mandatory prior to mounting.

Application

TERAPOR® NP-25 should be bonded to the base with TERMOFLEX® ADHESIVE FOR EPS or with TERMOFLEX® CONTACT- ADHESIVE AND REINFORCING MORTAR FOR EPS. The prepared mortar should be applied at a 4-5 cm strip along the board edges and at a few spots (3 to 6) in the middle with a diameter 7-8 cm. Then immediately mount the board to the wall evenly pressing on it. After pressing, the mortar should cover at least 40 % of the board's surface. In case of even and smooth surfaces the mortar should be applied in a corrugated manner by means of a notched trowel with a notch width of 20 mm. During application the notches of the trowel should reach the board so that deep enough ridges are formed and in this way after pressing the board to the wall is ensured enough space for spreading the mortar.

No mortar should get in the grouts between the boards or on their frontal sides and if that happens it should be removed. Wrongly installed areas or too big grouts should be sealed with the same insulation material. Grouts with width up to 5 mm may be sealed with polyurethane foam.

Board alignment should be performed bottom-up. The boards should be placed horizontally lengthwise the façade, tightly one next to another without leaving any space between them. Formation of cross-like grouts between the boards should not be allowed and for that reason they should pass each other horizontally with half a board. It should not be allowed for the grouts between the boards to continue the lines of the façade openings (windows, doors, etc.). Along the edges of the building the thermal-insulation boards should be crossed over in a notch like manner, which guarantees secure grip in those areas.

The surface of the already applied thermal insulation layer should be smooth, without steps or irregularities. Inequalities between the board levels should be removed through grinding. After TERMOFLEX® ADHESIVE MORTAR FOR EPS/XPS bonds (about 2 days) the boards should be grinded (if necessary) and then mechanically anchored. The number of dowels depends on the specific conditions of the construction site, but should not be less than 6 per square meter. The greatest pressure is concentrated along the outer edges of the building; therefore within a 2-meter strip of the edge the minimum number of dowels should be not less than 8 per square meter.

Attention!

Bonding of the boards should be performed at dry weather at temperature of the base and environment from +5ºC to +30ºC and air humidity below 65%.

For more information and detailed description of all necessary operations, which should be performed refer to "Technological instruction for constructing thermal insulation systems TERMOFLEX® and TERAPOR®.

Hazard description:

Does not contain dangerous chemical substances! Does not contain (F)CKW / HFCKW!

Hazard symbol:

Not subject of the identification regulations.

Classification

Complies with the requirements of European and Bulgarian standards and measures up to:

European Standard	Type	Testing protocols
EN 13163 EN 13501-1	EPS 100	№ PIT-ES-047-22/14.08.2012 № 671/14.08.2012 № FIRES-RF-035-09-AUNE № FIRES-RF-036-09-AUNE № FIRES-CR-035-09-AUPE

Designation code
EPS-EN 13163 L2 – W2 – T2 – S2 – P4 – DS(N)2 – DS(70,-)1 – CS(10)100 – BS170 – TR200 – WL(T)1

Technical data

Testing protocols are issued by Notified Body (NB 1950) for compliance evaluation with Research Institute of Building Materials NIISM Ltd., Sofia and Notified Body (NB 1396) FIRES s.r.o., Slovakia.

Thermal resistance (m^2K/W)									
10 mm	20 mm	30 mm	40 mm	50 mm	60 mm	70 mm	80 mm	90 mm	100 mm
0,345	0,690	1,034	1,379	1,724	2,069	2,414	2,759	3,103	3,448

Parameter	Measure	Testing method	Testing result
Thermal conductivity at 10° C **(λ)**	W/(mK)	EN 12667	0,029
Thermal resistance at 5 cm **(R_D)**	$(m^2K)/W$	EN 12939	1,72
Compressive stress at 10% deformation **(σ10)**	kPa	EN 826	100
Bending strength **(σb)**	kPa	EN 12089	193
Tensile strength perpendicular to faces **(σ_{mt})**	kPa	EN 1607	209
Long-term water absorption by total immersion, 7d **(W_{it})**	volume %	EN 12087	0,35
Long-term water absorption by partial immersion, 48h **(W_{ip})**	kg/m^2	EN 1609	0,012
Reaction to fire	-	EN 13501	E (Euro class)