INDRESMAT™
INDUSTRIAL RESINS & MATERIALS

BioPolyurethane based products for insulation

Bio-PUR foams

LOW C-FOOTPRINT POLYURETHANE INSULATION FOAMS FOR SUSTAINABLE & ENERGY-EFFICIENT CONSTRUCTION

The foams developed by INDRESMAT can be applied with a spray, injected or used as sheets, sandwich panels or applied in casting systems, being optimal for the insulation of roofs, walls and floating floors, especially indicated for areas with extreme cold climates where low thicknesses and wide range of working temperatures (-40 to +90ºC) are required.

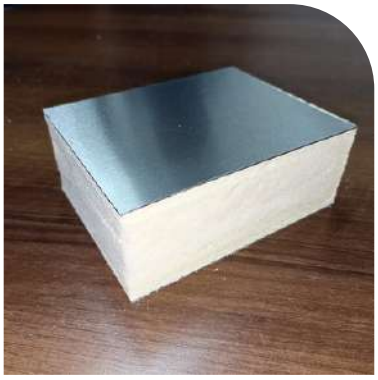
The targeted market for bio-PUR foams is the residential, commercial and industrial segments, mainly for energy rehabilitation and insulation, as well as waterproofing in rehabilitation activities.

BioPUR foams (In certification)

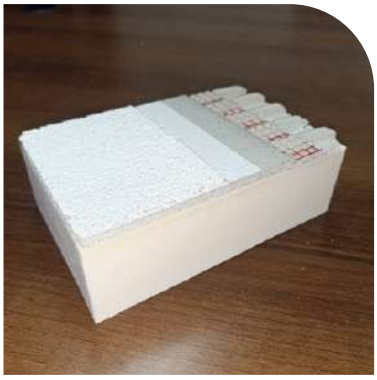
BioPUR is a low-density insulation foam that is formulated with 60-75% renewable raw material (mainly vegetable oils) for a density range of 40-80 kg/m3 and thickness range of 60-300 mm, offering a **thermal conductivity of 0.022-0.025 W/mK.** All together, bioPUR will reduce its C-Footprint by 25-40%.

The **applications** of bioPUR foams are the following:

SANDWICH



ETICS



SPRAY/INJECTION

MOULDING

TECHNICAL SPECIFICATIONS

Property	Unit of measure	Standard	Average values
Density	[kg/m^3]	UNI EN 14509 (A.8)	44,1
Thickness	[mm]	UNI EN 14509 (D2.1)	80,84
Thermal conductivity	[W/mK]	UNI EN 14509 (A.10.2.1.1)	0,0222
Tension modulus	[N/mm2]	UNI EN 14509 (A.1)	2,41
Tension strength	[N/mm^2]	UNI EN 14509 (A.1)	0,088
Compression modulus	[N/mm2]	UNI EN 14509 (A.2)	2,25
Compression strength	[N/mm2]	UNI EN 14509 (A.2)	0,092
Shear modulus	[N/mm2]	UNI EN 14509 (A.3)	2,313
Shear strength	[N/mm2]	UNI EN 14509 (A.3)	0,119
Small flame test	[mm]	Flame height (internal test)	172
Water/vapor permeabilty		UNE-EN 12086:2013	>150

SAFE-PUR® foams (In validation)

SAFE-PUR® is a foam that offers high passive safety in case of fire, showing reduced flammability and less spread of fire, as well as avoiding the emission of toxic fumes (main cause of death by fire). SAFE-PUR foams are not affected by UV radiation and their chemical stability is much higher than conventional PUR, having a 27% lower C-Footprint.

HYDRO-PUR foams (In development)

HYDRO-PUR is a porous foam that has a honeycomb-type structure and allows it to house plant germination (by dripping) or insect nesting in its macroporous structure. Although it does not have thermal or acoustic properties, it is a foam designed for integration into natural ecosystems in urban environments.

GREEN WALLS

By combining a first layer of bioPUR insulation foam and a second layer of Hydro-PUR foam with an irrigation system, a solution is achieved that allows the germination and growth of plants. All this, eliminating the use of 7 layers of materials used by conventional green wall systems.

SUSTAINABILITY

The low manufacturing energy, as well as a high content of vegetable origin make it possible to reduce the Carbon Footprint by 40-60% compared to other insulation materials

RENEWABLE MATERIALS & CIRCULARITY

We offer an alternative to formulations based on fossil resources. Bio-based versions include a high content of renewable raw materials (60-75%) from natural oils.

In addition, using a denser version of the material, we create profiles for doors and windows with very high energy efficiency.

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