



IPANTERM

PIANOSILICA
porous, refractory and ecological thermoinsulating material

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PIANOSILICA

- Innovative solution in the field of construction, insulation materials, construction chemicals and sealing materials. Easy technology of production and the possibility of using the generally available raw materials.
- Technology developed as a result of many years of research work scientists from Institute of Low Temperature and Structure Research of Polish Academy of Sciences in Wrocław. The technology is protected with 8 national and international patent applications and 3 Polish patents.





PIANOSILICA

PIANOSILICA is an ecological, non-flammable material characterised by low thermal conductivity. The process of foaming takes place at temperature below 500 ° C.



The technology was awarded with 2 gold medals at Brussels Innova innovation trade fair (2011) and awarded in the „Polish Product of the Future” competition (2014).





PIANOSILICA

With developing several versions of manufacturing method and possibility of using different fillers, PIANOSILICA can be used in a variety of applications. In each case, it is resistant to high temperatures.

The final set of parameters for a particular application is defined together with the client according to his needs.

Thanks to the possibility of replacing part of raw materials with wastes (industrial ashes/dusts, mineral wool, straw,...) PIANOSILICA is also an eco-friendly technology. It allows for a significant reduction of the manufacturing costs by limiting the costs of storage and re-processing of the waste.





PIANOSILICA

Technology of PIANOSILICA gives also a possibility to produce homogenous blocks of different shape from salty African sand without cement.

Obtained materials due their porosity provide good heat and sound insulation and are keeping inflammable properties.

*dune red sand
from Dubai
(50 w%)*





PIANOSILICA

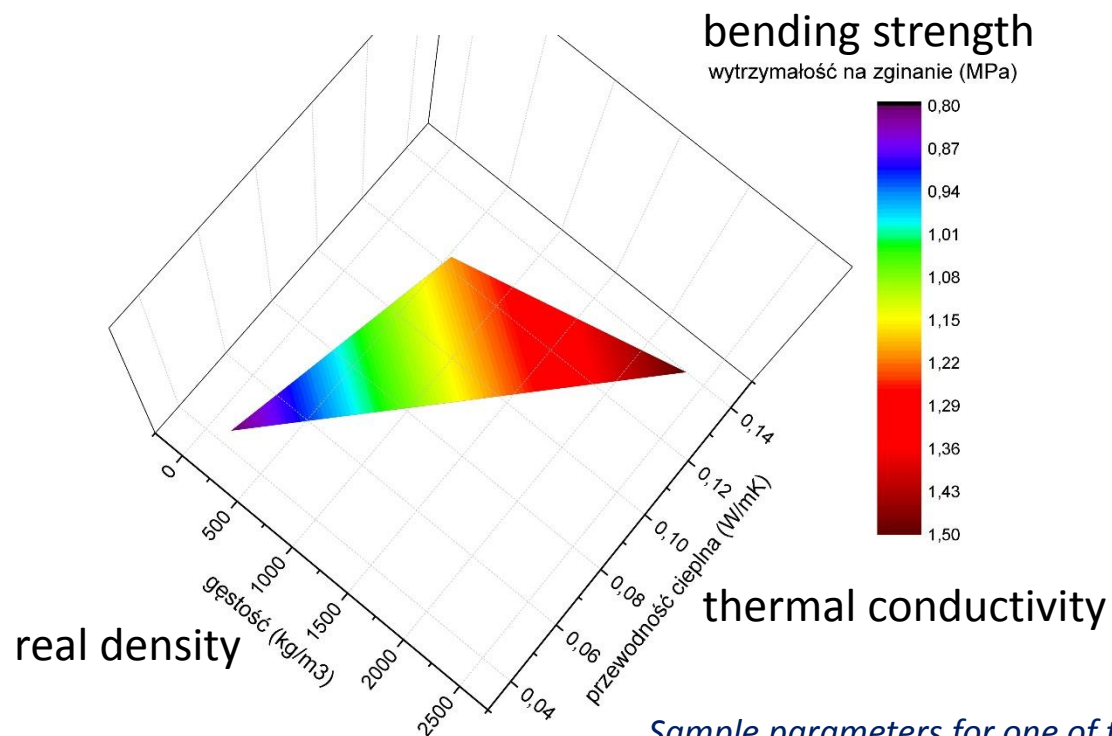
PARAMETER	VALUE
Real density [g/cm ³]	1.1 – 2.5
Apparent density [g/cm ³]	0.1 – 0.6
Refractoriness [°C]	up to 1300
Bending strength [kPa]	up to 2600
Thermal conductivity [W/mK]	0.030 – 0.500

Range of parameters for different versions of Pianosilica technology



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Sample parameters for one of the version of technology



PIANOSILICA

- non-flammability (up to 1300°C)
- low thermal conductivity and hydrophobic properties
- possibility of simple recycling
- flexibility of production technology, which allows materials to have specific properties





PIANOSILICA

Potential applications:

- Building industry and fireproof installations (blocks, sandwich panels)
- Filling the empty spaces/cracks in building constructions
- Padding materials for industrial furnaces, boilers, containers etc.
- Special purpose buildings (shielding electromagnetic/ionizing radiation)
- Medical industry (cryogenic chambers)



PIANOSILICA

Next step:

- February 2018, Ipanterm received a decision for granting the project POIR.01.01.01-00-0862/17 in the competition of micro, small and medium enterprises, which received the Seal of Excellence in the SME Instrument competition, phase II Horizon 2020
- Industrial production line for PIANOSILICA in the form of slabs, blocks, and sandwich panels with a core of foam silicate (Project completion date: 04/2018-03/2020).





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