BASF Research Press Conference
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New high performance insulation board provides customized climate management

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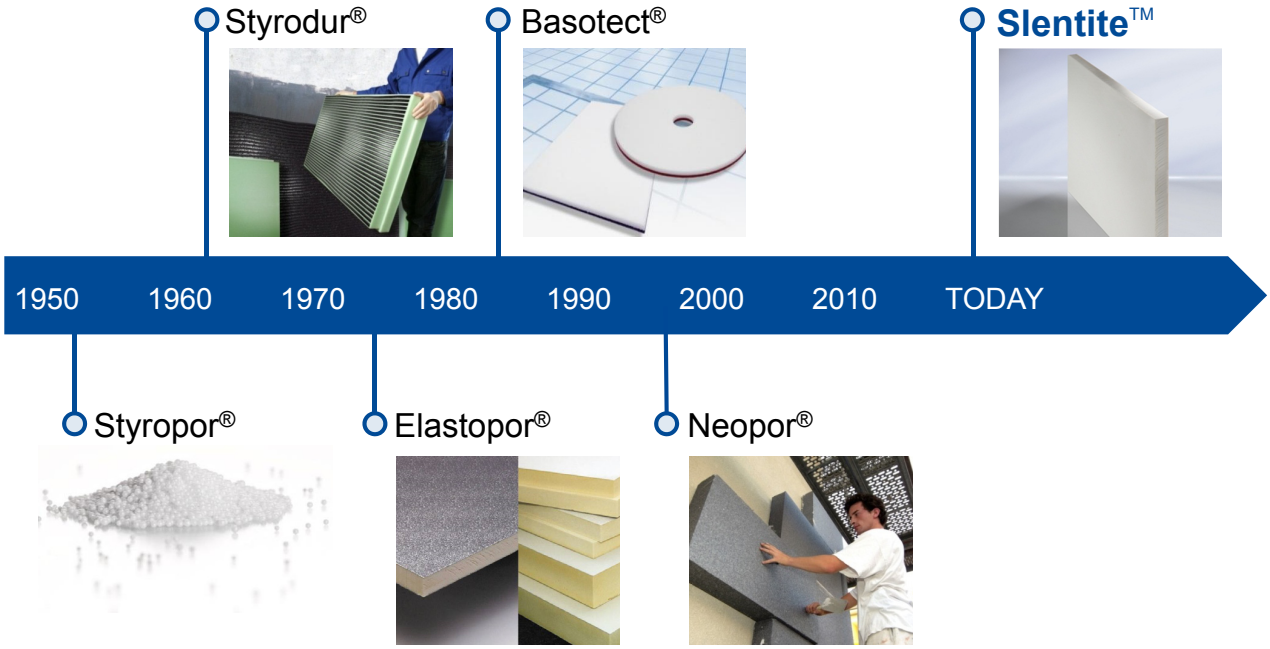
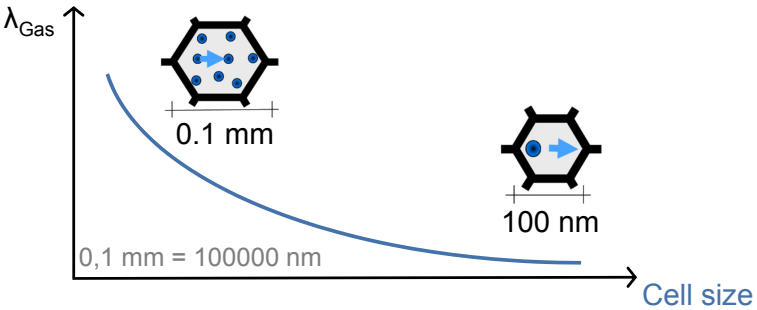
Different styles of architecture – different requirements

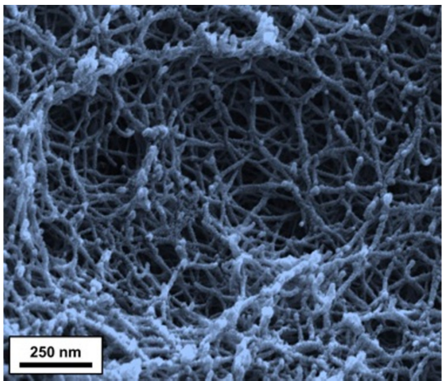
Thermal insulation materials help to save energy

Developments of innovative porous materials for the construction industry



Knudsen effect

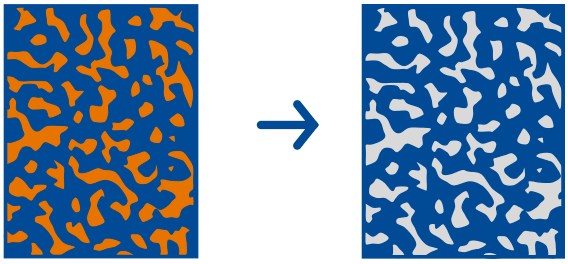




$\lambda_{Foam} = \lambda_{Matrix} + \lambda_{IR} + \lambda_{Gas}$

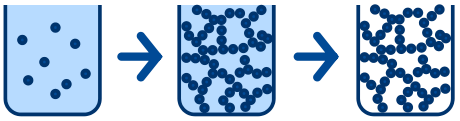
- Classical insulation materials exhibit morphologies in the µm to mm regime
- Nanoporosity drastically reduces heat transfer between gas molecules
- Thermal insulation is significantly improved

Path forward to obtain nanoporous materials



Bicontinuous microemulsion

Nanoporous material



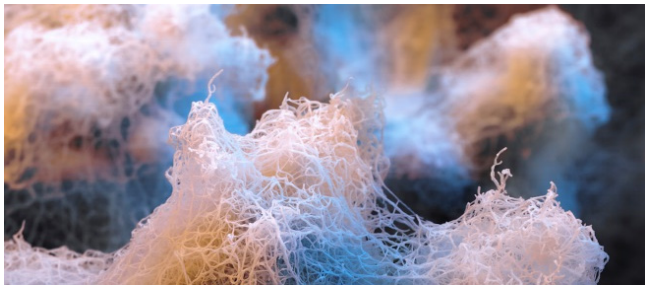
Sol Gel Aerogel

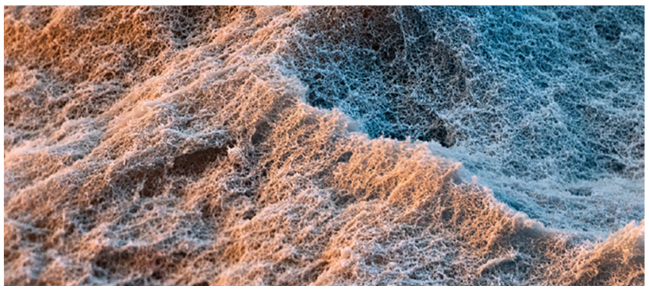
New concepts for high performance thermal insulation materials explored at BASF laboratory, I.S.I.S in Strasbourg.

New chemistries and processes for nanoporous materials established by BASF research

- Very low thermal conductivity
- Mechanical strength
- High porosity & open cell structure
- Low flammability

Slentite – homogeneous nanoporosity leads to top insulation values

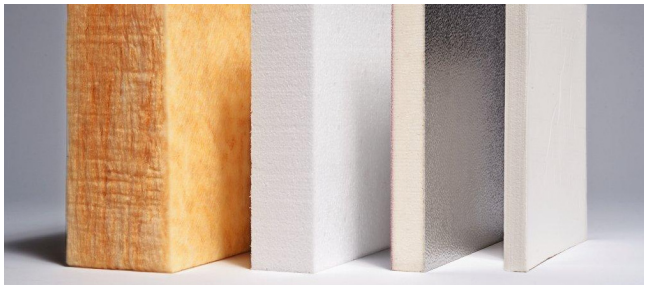




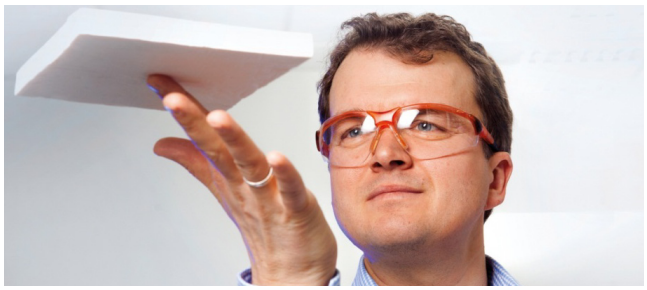
2007	2010	2011	2012	
λ>30	25	19	17	mW/m*K

Slentite is a new type of organic aerogel based on polyurethane chemistry exhibiting homogeneous nanoporosity

Space-saving and efficient insulation

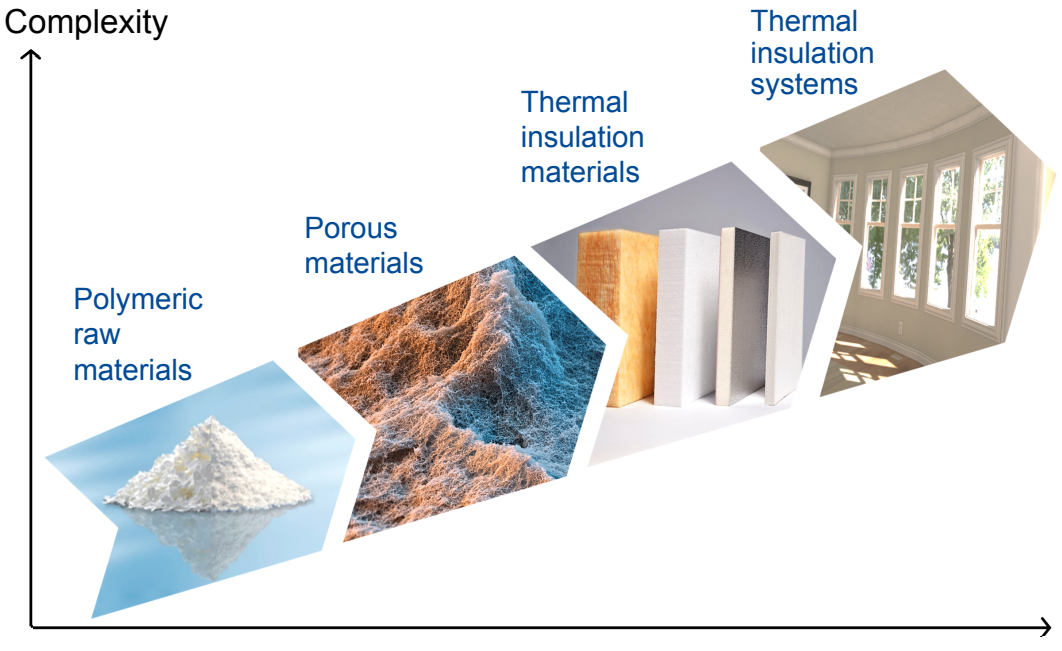


Slentite achieves the best insulation rating for a strong panel with a lambda value down to 17 mW/m*K



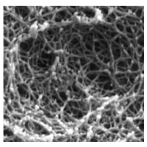
Slentite is space-saving: compared to conventional products, an up to 50% slimmer insulation is now possible combined with a high compression strength of > 300kPa

Application area of Slentite: Thermal insulation systems in buildings

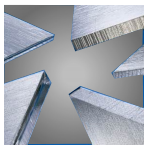


Slentite:
Customized climate management for sustainable construction solutions

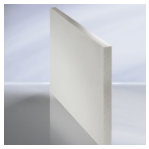
- Slim, efficient thermal insulation with 25 – 50% improvement compared to conventional products



- Effective humidity regulation provided by open-porous structure and tailor-made chemistry



- Robust panel with high compressive strength



- More freedom to design with high aesthetics in minimum space

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Nanotechnology

Small dimensions – great opportunities