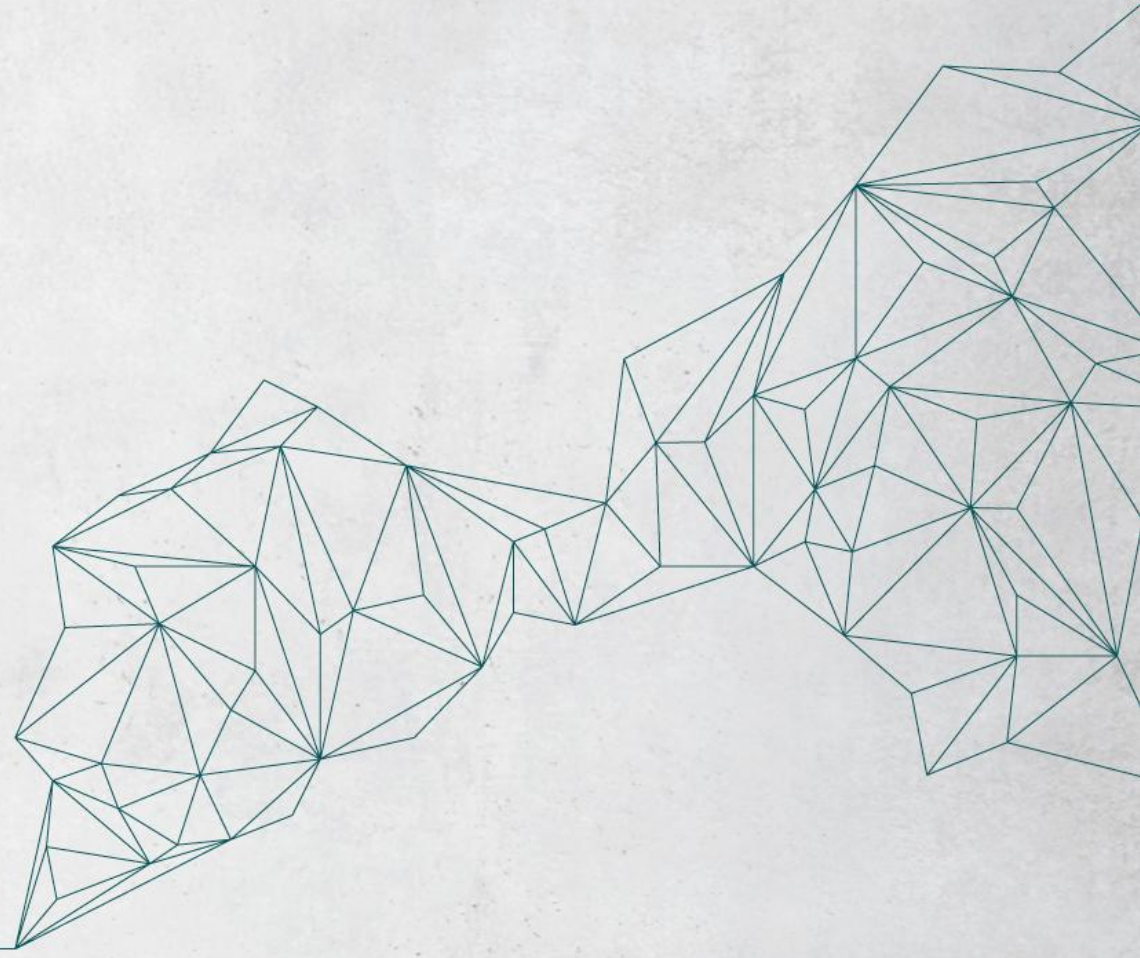
CHILLVENTA

Halle 9

Specialist Forums 2022
Fachforen 2022

CONNECTING
EXPERTS.



SUMTEQ

SMALL STRUCTURES. HIGH IMPACT.

Sumfoam - Technical Insulation with a Nanoporous Polymer Foam

Hans-Peter Grabowski

October 2022

Reduction of CO_2 emissions by using plastics:

We use the forces of the small to achieve the great!

SMALL STRUCTURES. HIGH IMPACT.

Vision

Redefining the
value of plastics

Mission

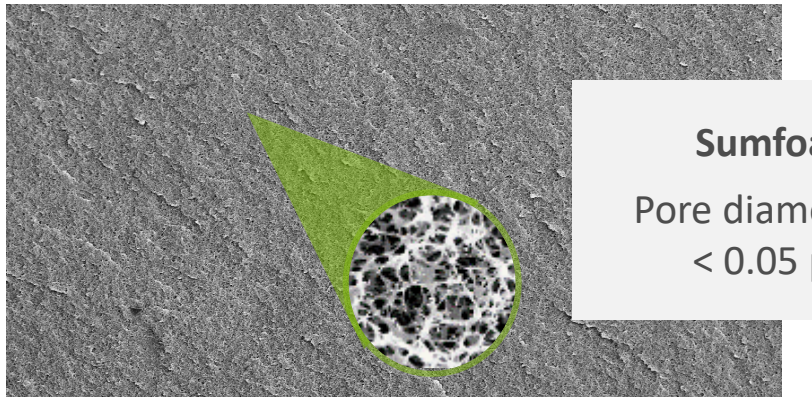
Establishing a **new class of materials**
as our contribution to achieving the
global climate targets

Sumfoam

A New Class of Materials

Innovation Sumfoam

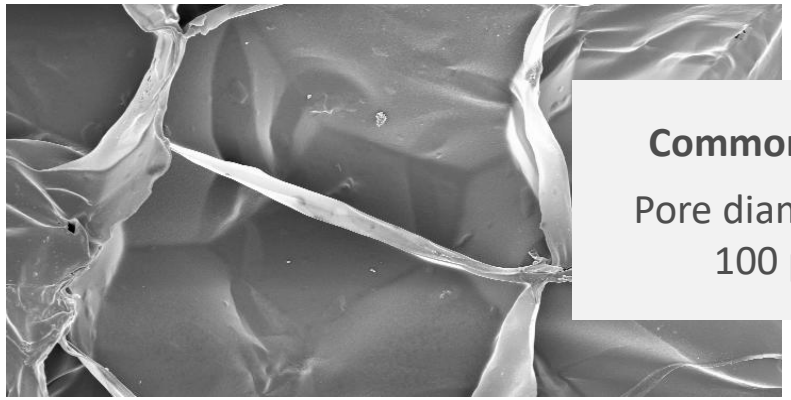
A new stage in the development of polymer foams



Sumfoam

Pore diameter of
< 0.05 µm

Same magnification



Common foam

Pore diameter of
100 µm

Pore size more than
2,000x reduced
vs. conventional foam
(e.g. EPS)

Polymer Nanofoam

1. Homogenous nanostructured foam
2. Unique versatile material properties
3. Cost-efficient and easy scalable
4. Excellent GWP-Index
5. IP protected by 15 patents/patent applications

1. Polymerization

Production of input polymer with only low-cost raw material

2. Foaming

Production of polymer nanofoam as granule by **climate-neutral foaming**

3. Customization

Customization by grinding and moulding

SUMTEQ Technology and Production Process

From the monomer to the final foam shape

Sumfoam in Different Shapes

Densities in the range from 60 to 200 kg/m³

Deviating grain sizes possible on request

Powder

Particle sizes	< 0,05 mm
	< 0,3 mm

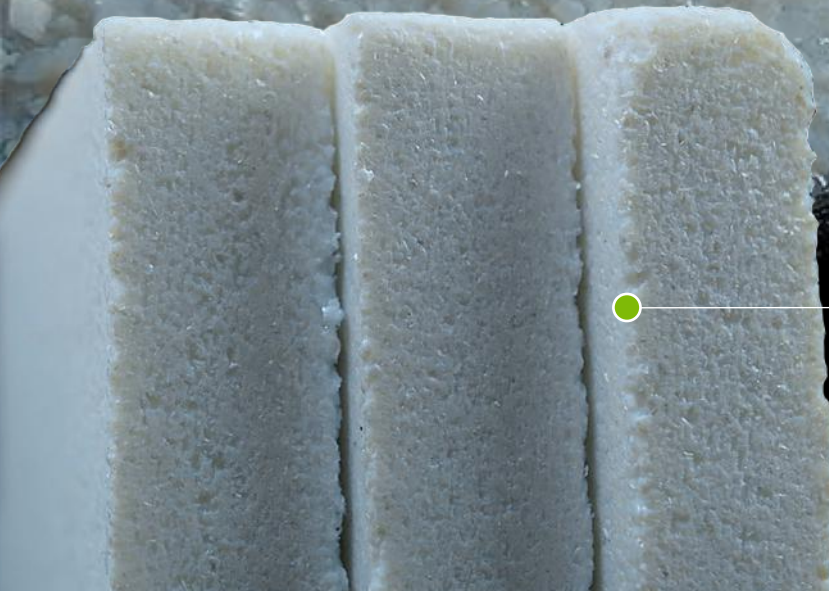
Flakes

Particle sizes	< 1 mm
	< 2,5 mm

Granules

Particle sizes	< 5 mm
	< 10 mm

Panels



Sustainable Environmental Impact

... from production to application

Production Impacts

Sustainable production process by innovative and energy-saving technology

Circular processing of the blowing agent

Application Impacts

High-performance properties for **efficient usage in insulation**

Significant **climate advantages of CO_2-emissions** compared to similar materials

Technical Specifications

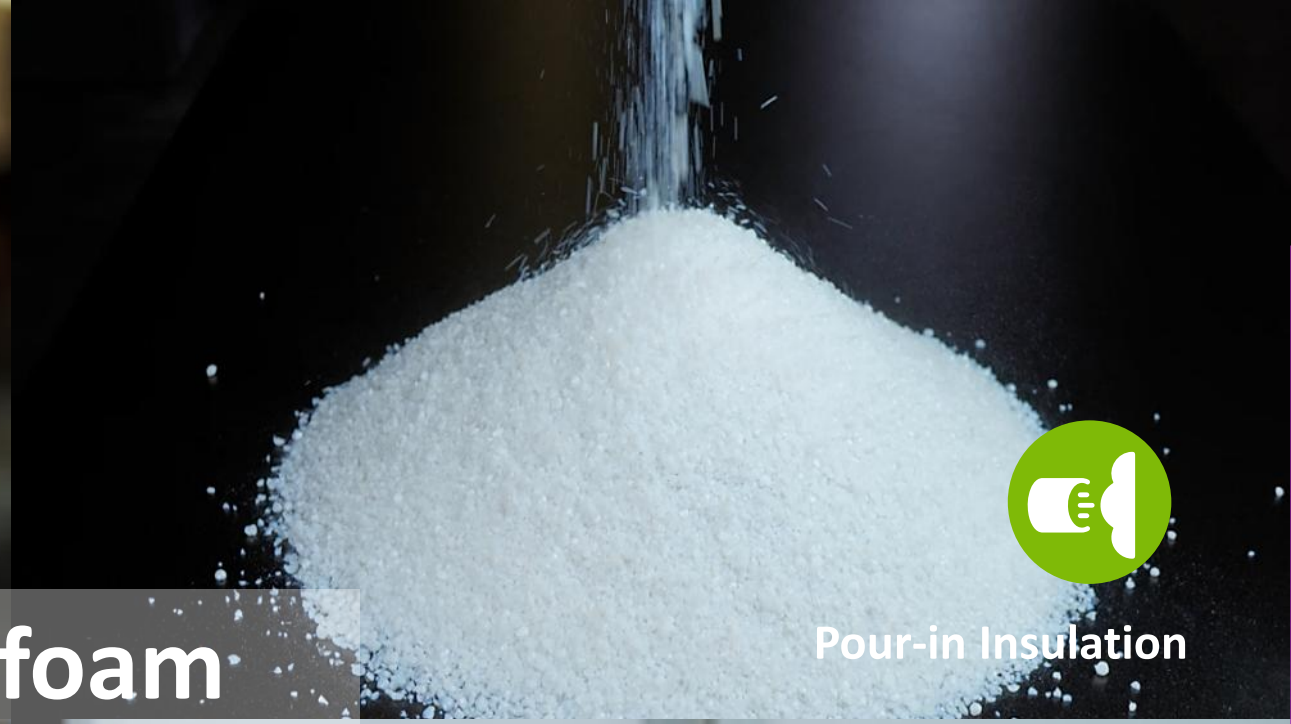
Material	Foamed acrylic copolymer
Form	Granules / Flakes / Powder
Pore structure	Open-cellular
Surface nature	Hydrophobic
Temperature range	-270 °C to +80 °C
Pore size	< 50 nm
Porosity	> 85%

- Climate-friendly high-performance insulation
- Versatile and flexible in application
- Excellent price-performance ratio

Sumfoam

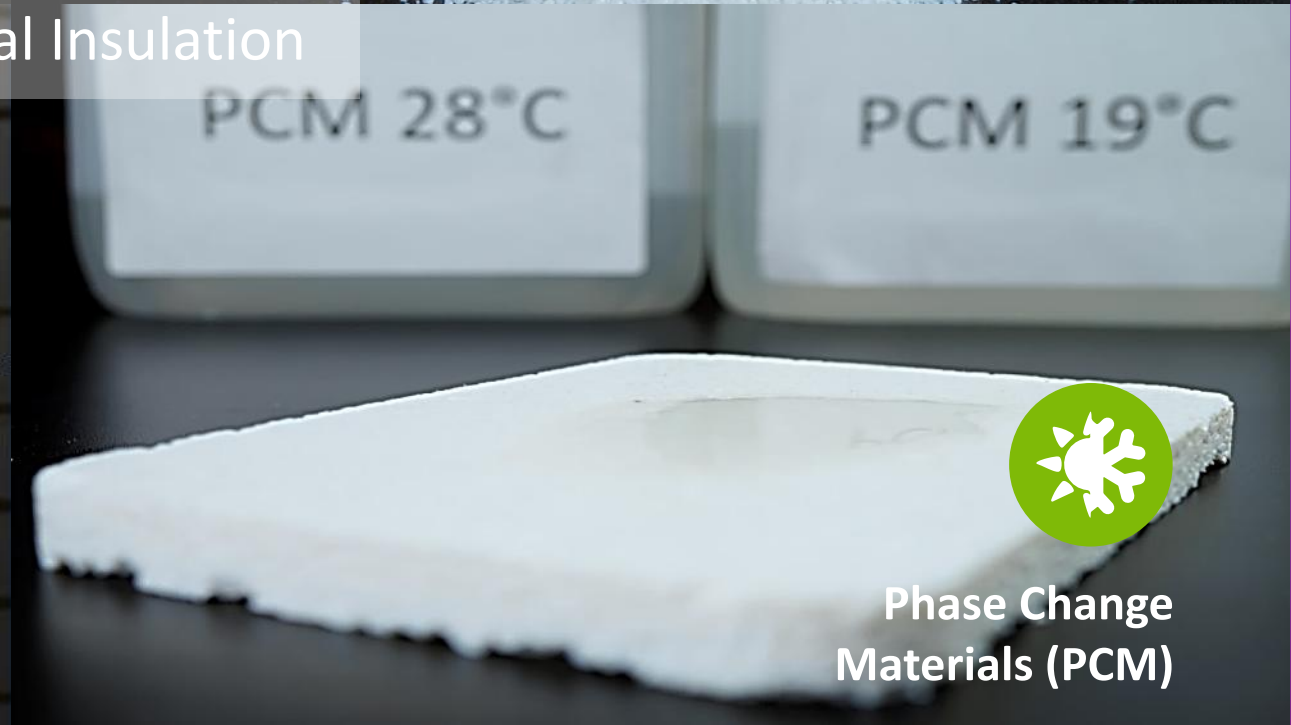
in Technical Insulation

Panels



Pour-in Insulation

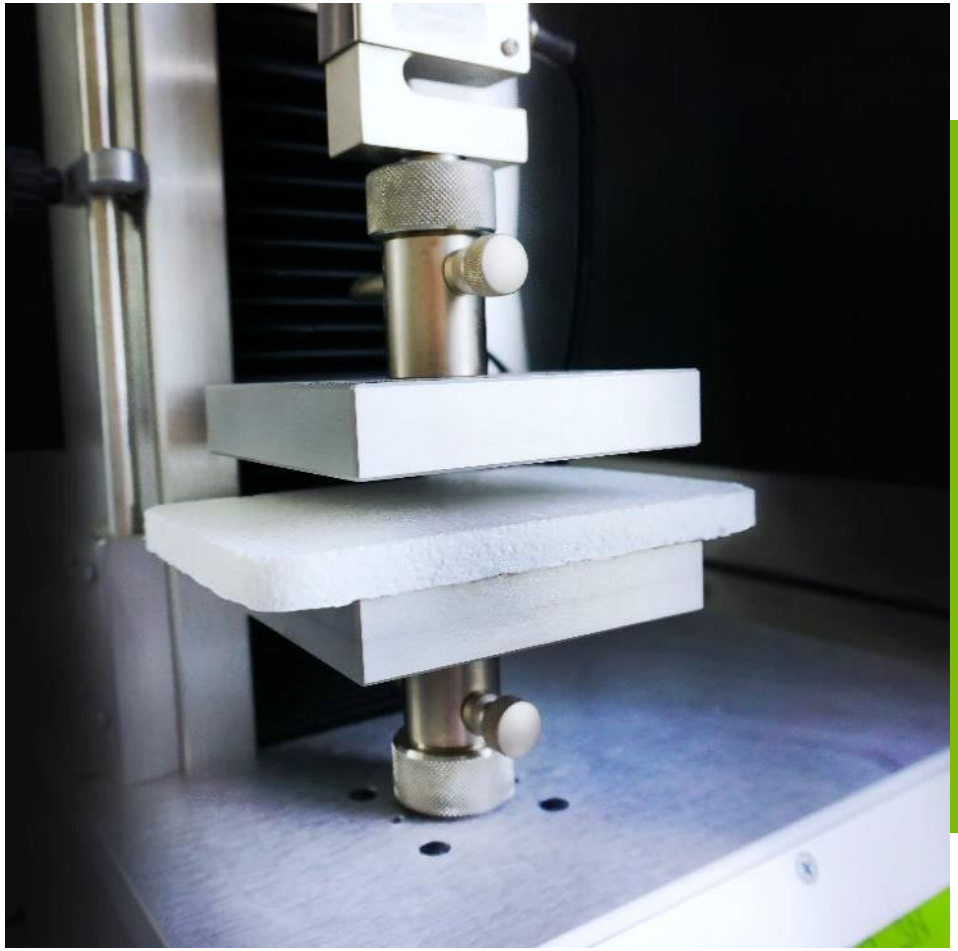
Sumfoam Paste



Phase Change Materials (PCM)

Panels and Shaped Parts

The new generation of foam panels

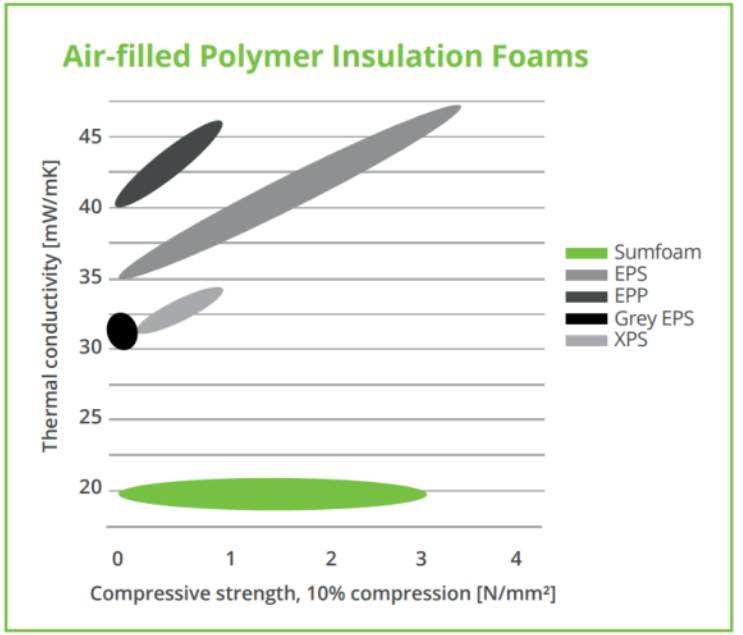


- Energy efficient by outstanding insulation performance
- Lightweight and extremely stable
- Excellent price-performance ratio

Sumfoam Panel
λ < 20 mW/mK

Panels and Shaped Parts

The new generation of foam panels



Sumfoam compared to common air-filled polymer foams in terms of lambda value and compressive strength.

Fields of Application

Insulation of transport vehicles of cold chain logistics

Maintaining the temperature in refrigerated or heated vessels

Pour-in Insulation

Loose filling of double-walled vessels

- Insulation for limited cavities
- Spreads even in the smallest cavities
- Flexible to process

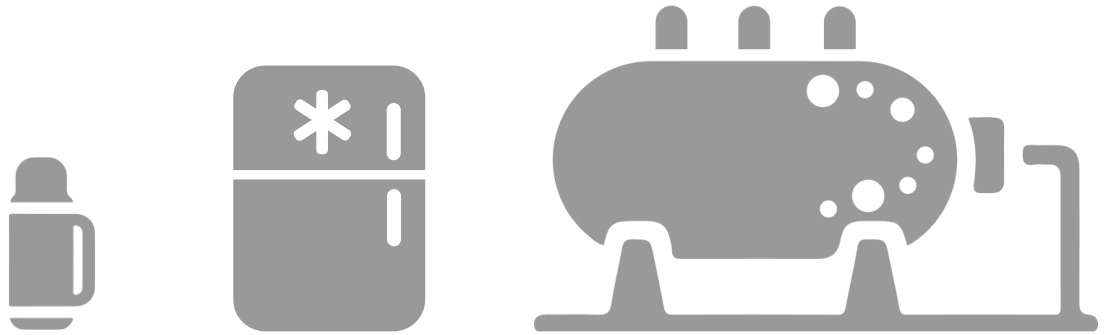
Pour-in Insulation
λ < 25 mW/mK

Pour-in Insulation

Loose filling of double-walled vessels

Fields of Application

- Liquid gas tanks for storage and transport
- Thermos containers and flasks
- Cooling and freezing units



Paste

Quick solution with great effect

- Highly insulative
- Flexible for different shapes
- Easy to apply

Sumfoam Paste
λ < 30 mW/mK

Paste

Quick solution with great effect

Fields of Application

- Insulation of round bodies, such as pipes
- Closure of insulation joints
- Repair of insulation gaps

PCM

Dry Liquid – Simple processing, high performance

- PCM as dry liquid
- Permanent binding with space for the phase change
- Flexible shapes possible

PCM

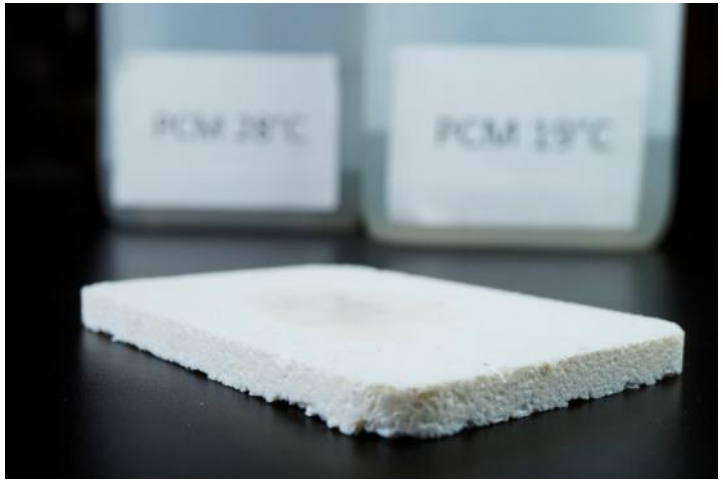
Dry Liquid – Simple processing, high performance

Simple processing

- Self-loading
- Loading within seconds

High performance

- Extraordinary capacity
- Permanent integration



Fields of Application

Maintenance of temperatures in pipelines

Shaped parts and loose fill for refrigeration

Coolers and thermo boxes

Thank you for your attention

SUMTEQ GmbH

Hall 4

Booth 4-508k

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CONNECTING EXPERTS.