

Proven sustainable light-weight solutions that efficiently attenuate vehicle noise

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Passion. Performance. Partnership.

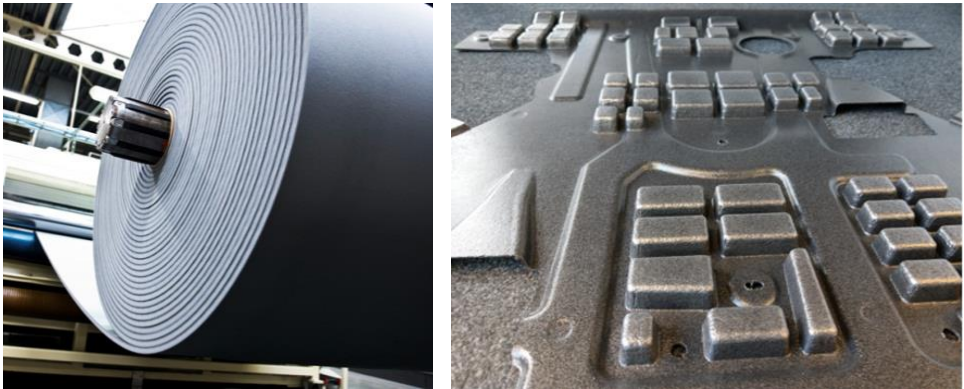
Introduction

Proven sustainable light-weight solutions that efficiently attenuate vehicle noise



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Company specialised in manufacturing high performance **polyolefin foams**



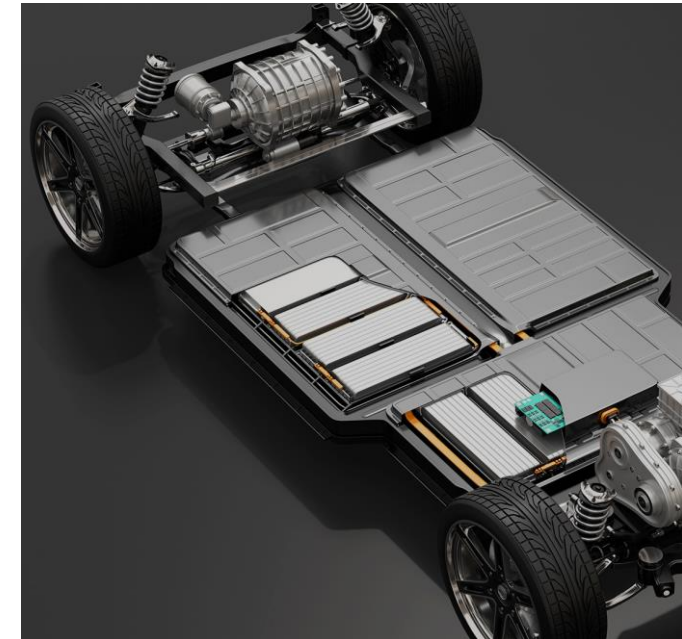
Expertise in development, production, marketing and sales of **semi-finished** foam products

Acoustic comfort

- Continual exposure to noise can cause stress!
- NVH* materials reduce noise
... and improve in-car communication.

Changing requirements with **electrification**:

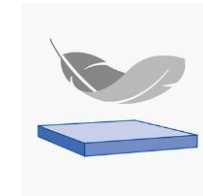
- Quieter vehicles
- High-frequent unpleasant interior noise
- Disturbing noise not masked by combustion engine noise



Electric vehicles (EV)



Address vehicle noise challenges and reduce weight with **polyolefin foam solutions**

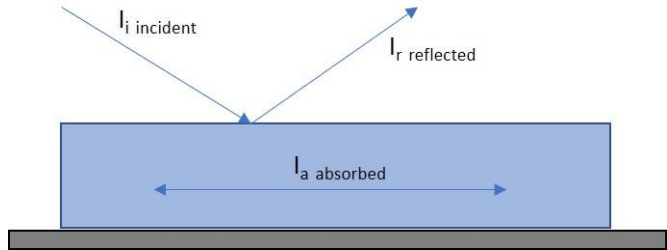


*Noise, vibration and harshness

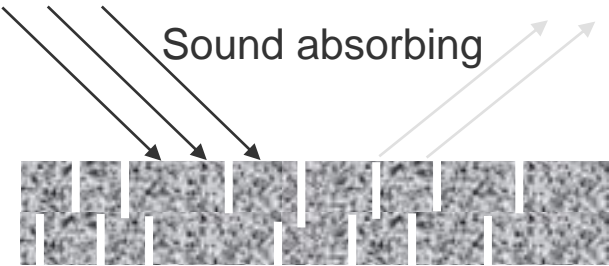
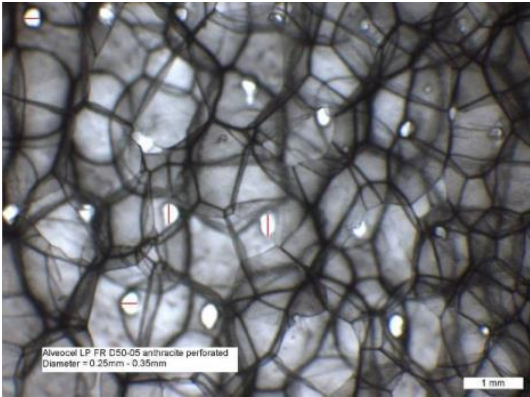
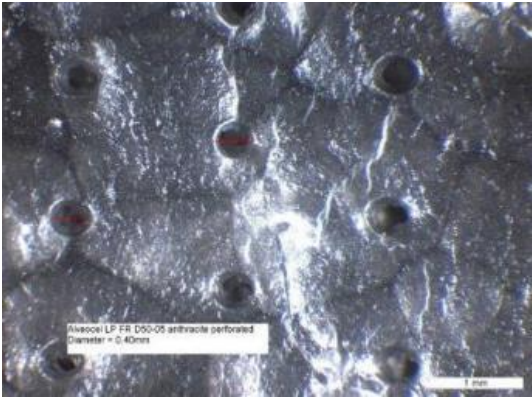
Sound absorption materials

Reduce the acoustic energy of a sound wave by dissipation:

- Porous materials or
- Closed-cell foams with micro-perforation



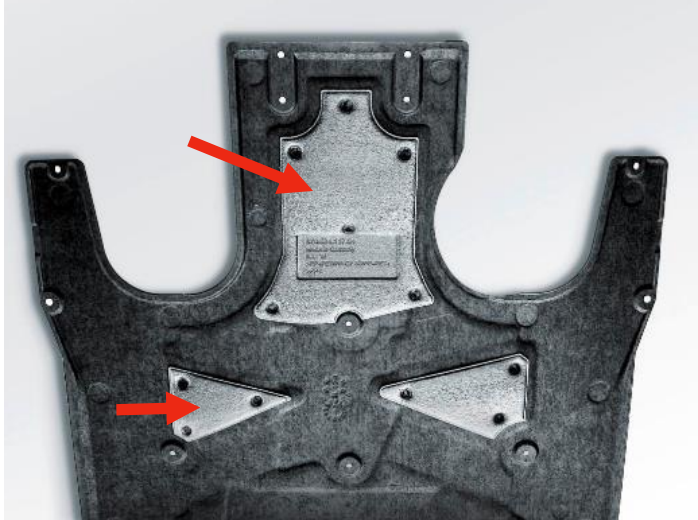
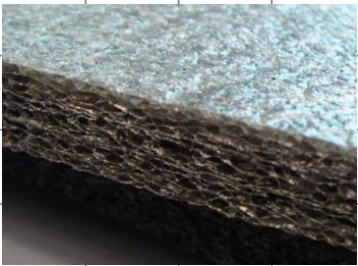
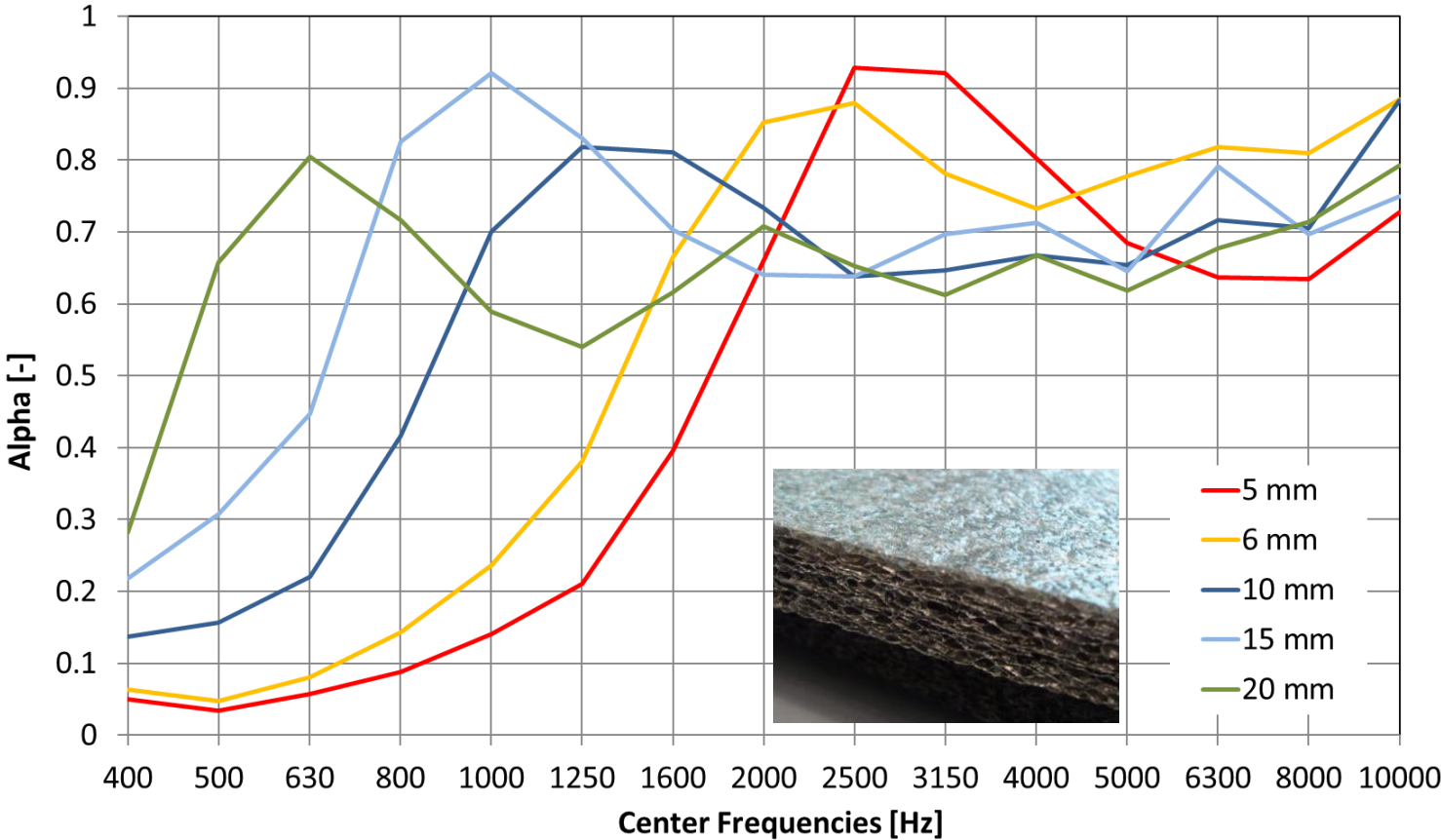
Sound absorption coefficient α



α -cabin
absorption
measurements

Sound absorption materials

Micro-perforated **ALVEOCEL** polypropylene foam



Flat absorbers (undershield)



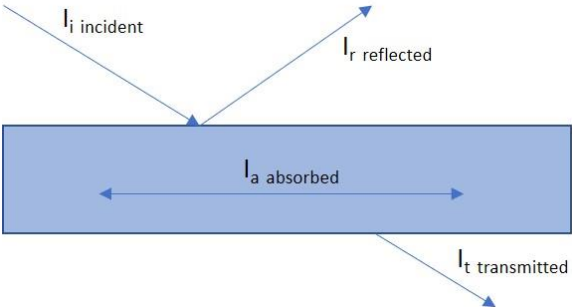
Flat absorber

High sound absorption values and tuneable absorption frequency

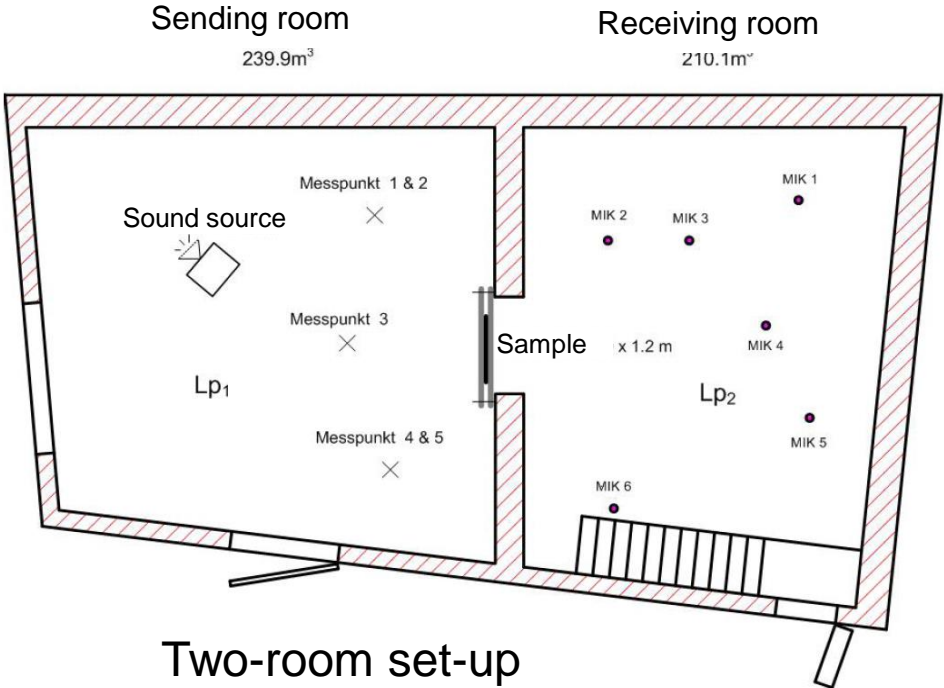
Sound barrier materials / Insulation

Reduce sound energy as the sound wave is transmitted through the material:

- Materials are impervious to air / no holes
- Transmission loss is strongly determined by area weight of material

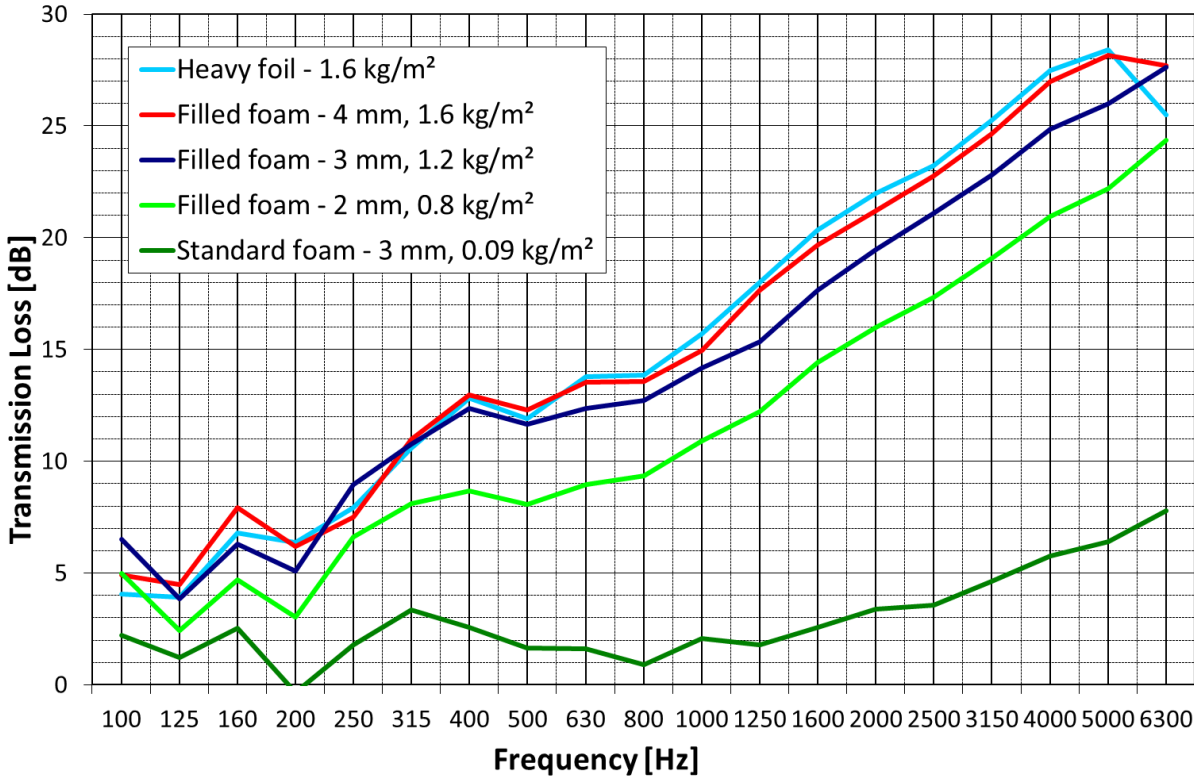


Closed-cell **ALVEOLEN** filled foams block sound from entering the car



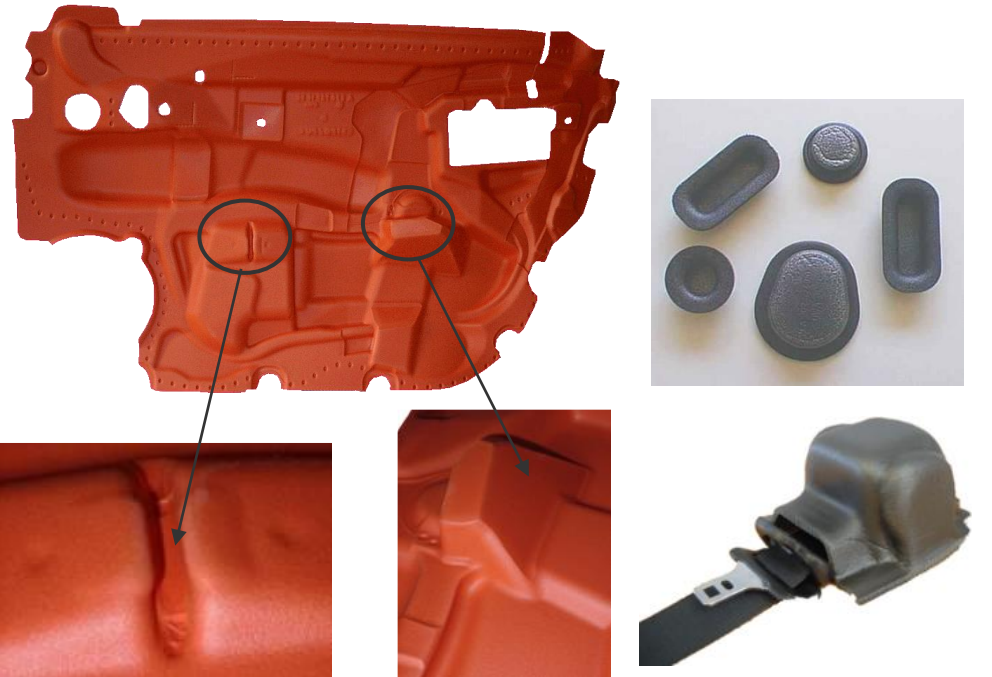
Two-room set-up

Sound barrier materials / Insulation



- Excellent acoustic insulation
- Perfect thermoformability even for complex geometries / undercuts
- Lamination with a soft material possible (mass/spring system)

Filled foams are particularly effective at high frequencies



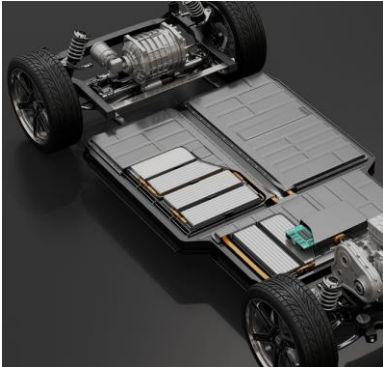
Watershields

Plugs / Enclosures

Foam air ducts

Heating, ventilation and air conditioning (HVAC) ductwork:

- Directing noise from the engine compartment into the passenger compartment
- HVAC system itself generates additional noise
- Noise from the HVAC system is more evident in EV cars



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ALVEOLEN foams
for flexible air ducts

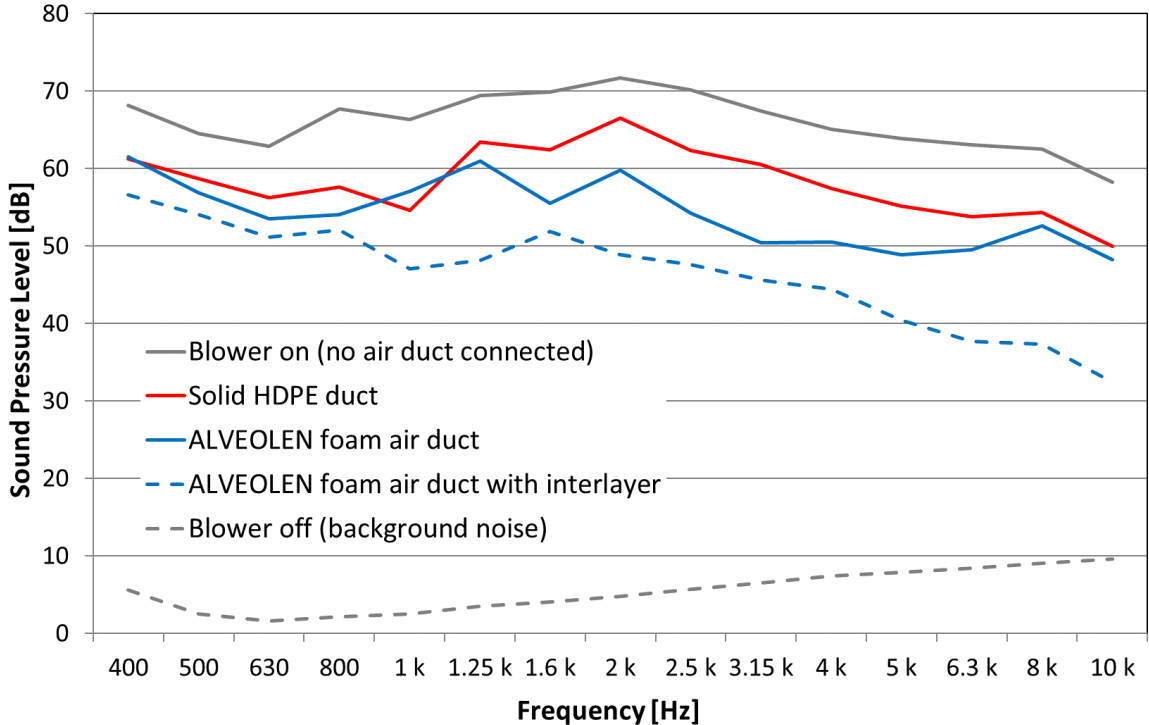


Vacuum twin-sheet thermoformed



Light-weight

Foam air ducts – Improved acoustics



Solid HDPE



Foam



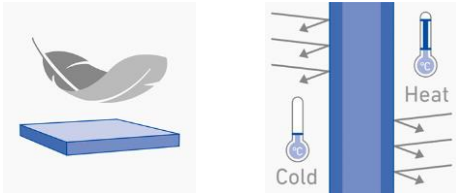
Foam + interlayer

Foam air ducts reduce noise up to 5-10 dB and reduce rattle and squeak noise

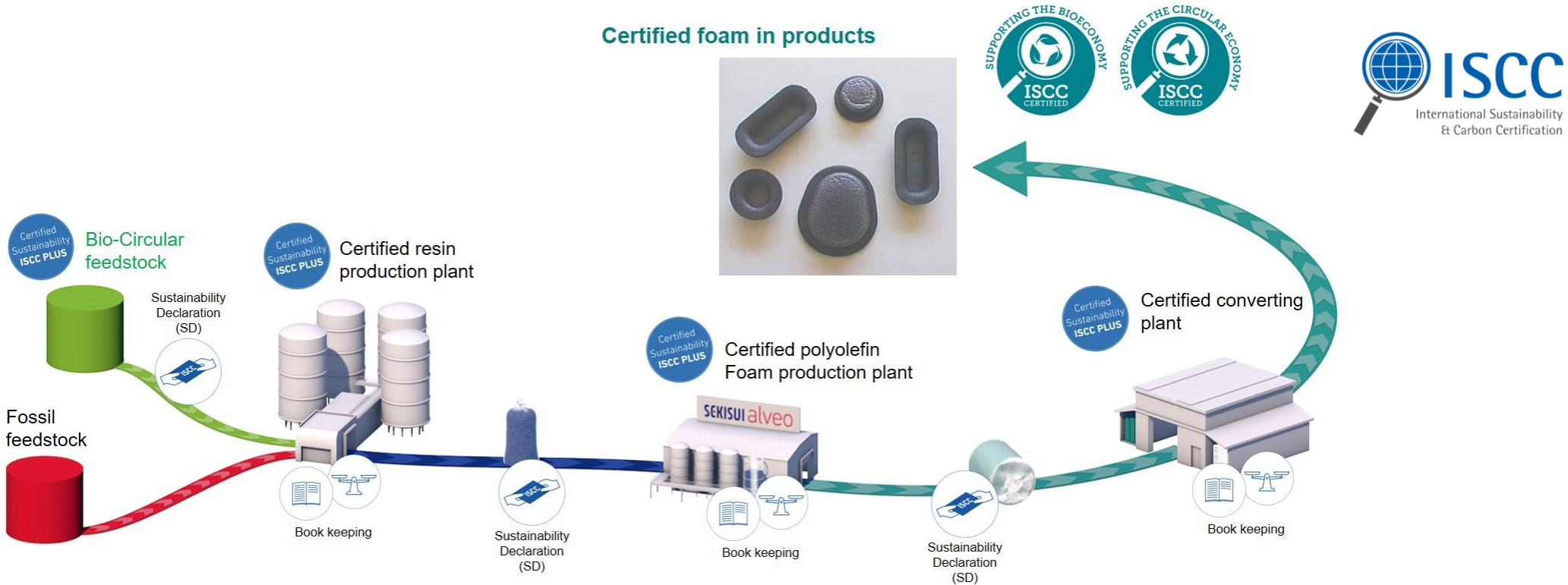
Additional benefits: thermal insulation, weight reduction, mechanical flexibility

Environmental advantages of polyolefin foams

- Light-weighting and energy saving
- ISCC Plus certified foams



→ Traceable, Transparent and Credible sustainable claims along the supply chain



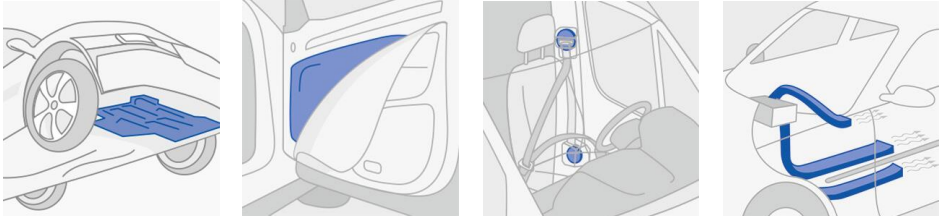
Summary

Proven sustainable light-weight solutions that efficiently attenuate vehicle noise



SEKISUI alveo

ALVEOCEL and ALVEOLEN
Polyolefin foam solutions



Premium Support
Application Service Laboratory



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Thank you for your attention!

Questions?