ISOLFON
ADVANCED ACOUSTIC PRODUCTS

ALPHA ACOUSTIKI Ltd
In TUNE with YOUR needs
ISOLFON product range is specialized in Building & Industry Acoustics applications that require Sound Absorption, Noise Insulation or Vibration Control treatment. The main advantage of ISOLFON product series, is the fact that they are easily installed and they can be utilized in many DIY applications. That includes among others floating floor constructions, increasing the sound insulation of walls, sound proofing for inexpensive acoustic interventions in music rehearsal and control rooms etc.

The main products of ISOLFON range are:

**Sound Absorption products**
- ISOLFON SEP-PU-SEPY: Polyurethane Acoustic Foam Panels
- iZIFON: Polyester fiber Slabs

**Noise insulation products**
- ISOLFON- PB: Rolls with Lead Sheet
- ISOLFON – Barrier: Mass Loaded Vinyl membrane

**Vibration control products**
- ISOLFON ReRub: Recycled rubber sheets
- ISOLFON Rebond: Recycled polyurethane foam sheets
- ISOLFON FF: Polyethylene foam for floating floors

The technical information referred in this brochure come from measurements and tests made in good faith and objectivity. This does not implies responsibility of the Company and may be subject to changes.

ISOLFON - SEP: Polyurethane foam slabs with a wave form design, that effectively traps sound and reduces the reverberation time.

The style of egg-crate acoustic foam offers sound proofing in the middle and high frequency. The panel is flexible and can be easily installed using appropriate glue on flat or curved surfaces of any kind (free of dust, oil and grease).

The product can also be supplied with self-adhesive surface to facilitate application. Some critical applications may need also appropriate mechanical fixing.

Slab Dimensions: 100x100x2.5 cm & 100x50x5 cm
Characteristics: High sound absorption, uniform porous structure. Reduces excess sound reflection, reverberation times, improving vocal clarity.

Sound absorption in recording studios, home cinema, night clubs, ventilation air duct, loudspeakers, sound attenuators etc. Reduces excess sound reflection, reverberation times, improving vocal clarity.

<table>
<thead>
<tr>
<th>Type: ISOLFON-SEP</th>
<th>Practical Sound Absorption Coefficient ($\alpha_p$)</th>
<th>Weighted Sound Absorption Coefficient ($\alpha_w$)</th>
<th>Sound Absorption Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency (Hz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>125</td>
<td>250</td>
<td>500</td>
</tr>
<tr>
<td>ISOLFON-SEP.25</td>
<td>0.05</td>
<td>0.2</td>
<td>0.4</td>
</tr>
<tr>
<td>ISOLFON-SEP.50</td>
<td>0.10</td>
<td>0.3</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Practical Sound Absorption Coefficient $\alpha_p$, has been calculated according to ISO 11654:1997.
ISOLFON - SE.PY: Polyurethane foam slab with a patterned pyramidal forms, that effectively traps sound and reduces the reverberation time.

ISOLFON - SE.PY: Polyurethane foam slab with a patterned pyramidal forms, that effectively traps sound and reduces the reverberation time.

Thickness (Max): 35 - 40 - 65 mm
(Other dimensions on request).

Dimensions: 100 x 50 cm


Applications: Sound absorption in recording studios, home cinema, night clubs, loudspeakers, etc.

Characteristics: High sound absorption, uniform porous structure. Reduces excess sound reflection, reverberation times, improving vocal clarity.

ISOLFON - SE.PY offers sound absorption in the middle and high frequencies. It is produced in various thicknesses to cover the needs of all kinds of applications where sound absorption is required.

The panel is flexible and can be easily installed (no advanced equipment is required). Just use glue on flat or curved surfaces of any kind (free of dust, oil and grease). Some critical applications may need appropriate mechanical fixing.

<table>
<thead>
<tr>
<th>Type</th>
<th>Pyramid Dimensions (H x A) (mm)</th>
<th>Practical Sound Absorption Coefficient α_p</th>
<th>Weighted Sound Absorption Coefficient α_w</th>
<th>Sound Absorption Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISOLFON-SE.PY.35-50</td>
<td>35 x 50</td>
<td>0.05 0.2 0.4 0.8 1 1</td>
<td>0.8(H)</td>
<td>B</td>
</tr>
<tr>
<td>ISOLFON-SE.PY.65-70</td>
<td>65 x 70</td>
<td>0.1 0.3 0.7 0.9 1 1</td>
<td>0.9</td>
<td>A</td>
</tr>
</tbody>
</table>

Practical Sound Absorption Coefficient α_p, has been calculated according to ISO 11654:1997.
**ISOLFON - PU**: Polyurethane foam slabs with a flat form design that effectively absorb the sound and reduce the noise.

**Thickness (Max):**
- 5 - 10 - 20 - 50 mm
- (other dimensions on request).

**Dimensions:**
- 100 x 100 cm. (also available in rolls).

**Fire Resistance: Self-extinguishing.**

**Characteristics:**
- High sound absorption,
- uniform porous structure.

**Applications:**
- Sound absorption in, ventilation air ducts,
- Fan boxes, Acoustic Louvres,
- Machine canopies.

**ISOLFON - PU** offers sound proofing in the middle and high frequency. The panel is flexible and can be easily installed (no advanced equipment is required). Just use glue on flat or curved surfaces of any kind (free of dust, oil and grease). Some critical applications may need appropriate mechanical fixing.

### Technical Characteristics

**ISOLFON - PU**
- **Polyurethane foam slabs with a flat form design that effectively absorb the sound and reduce the noise.**

### Acoustic Properties

**Sound Absorption Coefficient (α_p)** (In relation to the thickness)

#### Frequency (Hz)
- 125
- 250
- 500
- 1000
- 2000
- 4000

<table>
<thead>
<tr>
<th>Type</th>
<th>Practical Sound Absorption Coefficient (α_p)</th>
<th>Weighted Sound Absorption Coefficient (α_w)</th>
<th>Sound Absorption Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISOLFON-PU.5</td>
<td>0.05 0.05 0.2 0.35 0.65 0.6</td>
<td>0.35 (H)</td>
<td>D</td>
</tr>
<tr>
<td>ISOLFON-PU.10</td>
<td>0.05 0.1 0.25 0.45 0.85 0.8</td>
<td>0.45 (H)</td>
<td>D</td>
</tr>
<tr>
<td>ISOLFON-PU.20</td>
<td>0.1 0.2 0.45 0.75 1 0.95</td>
<td>0.75 (H)</td>
<td>C</td>
</tr>
<tr>
<td>ISOLFON-PU.50</td>
<td>0.2 0.35 0.7 0.9 1 1</td>
<td>0.9</td>
<td>A</td>
</tr>
</tbody>
</table>

Practical Sound Absorption Coefficient α_p has been calculated according to ISO 11654:1997
iZiFON: New generation, revolutionary new product, made of 100% polyester fibre.

The material consists of fine, long, polyester fibres of various deniers thermally bonded without the use of any chemical additive in its production. It is widely recognized for its energy conserving and sound absorption / thermal insulation properties.

**Slab Dimensions:** 120 x 60 cm

**Thickness:** 30 or 50 mm. (Other dimensions on request)

**Density:**
- 20 or 38 Kg/m³ (for slabs)
- 10 or 12 Kg/m³ (for rolls)

Tolerance on density and thickness:
- ±10%
- Dimensional tolerance: ±0.5 cm

**Thermal insulation**

**Thermal conductivity:** $\lambda_{10} = 0.031$ W/m.K (measured at 38 Kg/m³)

**Humidity:** Air transpiration through the walls

**Fire reaction**

Since there are no chemical components involved in the manufacturing process at any time, it has self-extinguishing characteristics.

**Stability**

iZiFON is not affected by ultraviolet radiation neither by bacterial, microorganisms, insects etc. It has long time durability and does not need frequent replacements. Temperature application range -40 to +80°C.

**Flexibility**

It is particularly lightweight, flexible and easy to assemble.

**Eco friendly**

Some types of iZiFON are made from recycled materials and it can also be recycled.

**Friendly for humans and the environment**

iZiFON is totally hygienic and non-allergic. It can be installed with bare hands and does not leave any itchy feeling to the installers. No gloves are required for handling it and it is 100% non-carcinogenic, thereby making it very user friendly. It is rot proof and odorless.

iZiFON is versatile. It can be applied over or under false ceilings, under concrete roofs, between gypsum board layers, etc.

iZiFON offers:
- Thermal and sound insulation between walls.
- Sound absorption for room acoustics.
- Thermal and sound insulation in air ducts.
- Noise reduction in sound attenuator baffles.
- Production of acoustic panels with hygienic materials.

**TECHNICAL CHARACTERISTICS**

**APPLICATIONS**

Application of iZiFON in wall insulation

![Sound absorption](image)

The sound absorption coefficient ($\alpha$), has been measured and certified, according to ISO EN 354, (for thickness 50mm).
Sound Absorption - Thermal Insulation. Polyester fibre slabs & Rolls

**iZiFON Slabs & Rolls**

### Technical Characteristics

<table>
<thead>
<tr>
<th>TYPE</th>
<th>DIMENSIONS (cm)</th>
<th>THICKNESS (mm)</th>
<th>DENSITY (kg/m³)</th>
<th>THERMAL CONDUCTIVITY λ (W/m.K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>iZiFON S 25/50 (Slabs)</td>
<td>120 x 60</td>
<td>50</td>
<td>20</td>
<td>0,038</td>
</tr>
<tr>
<td>iZiFON S 25/30 (Slabs)</td>
<td>120 x 60</td>
<td>30</td>
<td>20</td>
<td>0,038</td>
</tr>
<tr>
<td>iZiFON S 40/50 (Slabs)</td>
<td>120 x 60</td>
<td>50</td>
<td>38</td>
<td>0,031</td>
</tr>
<tr>
<td>iZiFON S 40/30 (Slabs)</td>
<td>120 x 60</td>
<td>30</td>
<td>38</td>
<td>0,031</td>
</tr>
<tr>
<td>iZiFON R 12/50 (Rolls)</td>
<td>1000 x 60</td>
<td>50</td>
<td>12</td>
<td>0,047</td>
</tr>
<tr>
<td>iZiFON R 10/30 (Rolls)</td>
<td>1000 x 60</td>
<td>30</td>
<td>10</td>
<td>0,049</td>
</tr>
</tbody>
</table>

### Sound Absorption Characteristics

![Graph showing sound absorption coefficient vs frequency for different types of iZiFON slabs and rolls.]
ISOLFON - Barrier: High performance, flexible, mass-loaded vinyl noise barrier, offering superior acoustic transmission loss.

Constructed of non-reinforced blend of polymers compounded mineral filled, without lead and bitumen fillers. ISOLFON - Barrier can be used to increase transmission loss between acoustically sensitive spaces. It offers comfort, privacy, confidentiality and protection from external noise by improving the noise insulation of existing structures, through retrofitting over existing walls and covering with gypsum board. Stiff lightweight panel constructions, such as gypsum board, typically have coincidence dip resonance, which allows noise to be transmitted through a construction. The coincidence dip depends on the material’s stiffness and thickness and occurs at the point where the transmitted through the structure sound matches the natural frequency of the panel. ISOLFON - Barrier prevents coincidence dip resonance.

Acoustic Characteristics

Weighted Sound Reduction Index for Barrier.5R:
\[ R_{w} (C, Ctr) = 26 \ (0, -3) \ dB \]  
(according to ISO 140.3 & ISO 717.1)

Application in floating ceilings

![Application in floating ceilings](image-url)
**ISOLFON**  
**Barrier**  
**Viscoelastic Membrane**

**Application in gypsum-board partitions**

![Gypsum-board partition application](image)

**Application in waste pipe noise insulation**

![Waste pipe noise insulation](image)

**TECHNICAL CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Types</th>
<th>Dimensions</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrier 3.5R:</td>
<td>5m x 1m</td>
<td>1.8 mm</td>
</tr>
<tr>
<td>Barrier 5R:</td>
<td>5m x 1m</td>
<td>2.5 mm</td>
</tr>
<tr>
<td>Barrier 10P:</td>
<td>1.2m x 1m</td>
<td>5 mm</td>
</tr>
</tbody>
</table>

- **Tensile Strength:** 0.9 MPa
- **Fire Behaviour:**  
  - [FMVSS 302] < 100 mm/min
  - ISO 3795: 1989 < 17.6 mm/min
- **Temperature Range:** -30°C, +130°C (continuous use)
ISOLFON - PB is the best choice for applications where space is limited. The lead is one of the heaviest material. Because of its inherent limpness or softness lead cannot be easily set in vibration. Due to mass law (greater surface weight of the barrier better noise reduction), they can offer an excellent noise insulation. Both external surfaces of the roll are covered by a highly flexible reticulated polyethylene foam in order to protect the lead sheet, facilitate the installation and offer also an extra vibration absorption.

**Supplied in rolls**
- **Length:** 3m (other dimensions on request)
- **Width:** 1m
- **Thickness:** Total 6mm
- **Surface weight:** 4kg/m²
- **Reaction to fire:** Class 2 (self-extinguishing)
- **Dynamic Rigidity:** $s' = 67$ (MN/m³)
  - According to ISO-EN 29052-1
- **Weighted Sound Insulation index:** $R'w = 27$ dB,
  - According to ISO 140.3 & ISO 717.1

**Applications**
Noise reduction in building separation walls, engine compartments in luxury boats or tracks, timber floors, machinery insulation covers etc.

**Installation**
Use glue on flat and curved surfaces of any kind (free of dust, oil and grease). The product can also be supplied with self-adhesive surface to facilitate application.

**Complex composed of:**
- A: Layer of reticulated polyethylene foam (3mm)
- B: Lead sheet

**Laboratory test results according to ISO 140.3 & ISO 717.1**

<table>
<thead>
<tr>
<th>Frequency f [Hz]</th>
<th>Sound Reduction Index $R'$ [dB]</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>125</td>
<td>5</td>
</tr>
<tr>
<td>160</td>
<td>10</td>
</tr>
<tr>
<td>200</td>
<td>15</td>
</tr>
<tr>
<td>250</td>
<td>20</td>
</tr>
<tr>
<td>315</td>
<td>25</td>
</tr>
<tr>
<td>400</td>
<td>30</td>
</tr>
<tr>
<td>500</td>
<td>35</td>
</tr>
<tr>
<td>630</td>
<td>40</td>
</tr>
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<td>800</td>
<td>45</td>
</tr>
<tr>
<td>1000</td>
<td>50</td>
</tr>
<tr>
<td>1250</td>
<td>55</td>
</tr>
<tr>
<td>1600</td>
<td>60</td>
</tr>
<tr>
<td>2000</td>
<td>65</td>
</tr>
<tr>
<td>2500</td>
<td>70</td>
</tr>
<tr>
<td>3150</td>
<td>75</td>
</tr>
<tr>
<td>4000</td>
<td>80</td>
</tr>
<tr>
<td>5000</td>
<td>85</td>
</tr>
</tbody>
</table>

Application of ISOLFON PB on waste pipe
ISOLFON - ReBond: Complex material, that can be used for sound absorption, soundproofing & impact noise insulation.

ISOLFON-ReBond is produced from recycled flexible polyurethane foams pressed & bonded with polyurethane glue.

Its primary application is to solve complex acoustic problems in buildings. Used in wall & ceiling cladding to fill the air gaps and create the Mass Spring effect, to improve the Sound Insulation properties of the wall system. The consistency and elasticity of ISOLFON-ReBond composition is used as «spring», in combination with materials which play the role of the mass, such as plasterboards, MDF, hardboard, etc.

<table>
<thead>
<tr>
<th>ISOLFON-ReBond Type</th>
<th>Specific Weight (Kg/m³)</th>
<th>Thickness (mm)</th>
<th>Sound Absorption Coefficient αs</th>
<th>NRC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Frequency (Hz)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>250</td>
<td>500</td>
</tr>
<tr>
<td>ReBond.80.40</td>
<td>80</td>
<td>40</td>
<td>0.16</td>
<td>0.46</td>
</tr>
<tr>
<td>ReBond.80.60</td>
<td>80</td>
<td>60</td>
<td>0.28</td>
<td>0.70</td>
</tr>
<tr>
<td>ReBond.80.80</td>
<td>80</td>
<td>80</td>
<td>0.59</td>
<td>0.92</td>
</tr>
<tr>
<td>ReBond.80.100</td>
<td>80</td>
<td>100</td>
<td>0.70</td>
<td>0.85</td>
</tr>
</tbody>
</table>

Sound absorption coefficient according to ISO 10534-2:1998.
Soundproofing
The noise reduction of a single-layer partition, is depended by their surface mass, deflection stiffness. As doubling the mass, increases sound insulation by 6 dB.

To ensure good noise reduction (Rw > 50 dB), single layer partitions require surface masses greater than 250 kg/m².

For multi-layer panels with facing, greater noise reduction can be achieved with less mass, taking advantage of the mass-spring principle.

Sound Insulation can be improved by, increasing the gaps between layers. To avoid cavity resonance, the gap should be filled with sound-absorbing light weight soft material, such as ISOLFON-ReBond.

ACOUSTIC PERFORMANCE (CONT.)

Mass-spring-mass systems (Lightweight double-leaf partition wall) are light and efficient, easy and quick to install and consume less space. As the sound waves pass through ISOLFON-ReBond, friction occurs between the sound wave and the ReBond slab. This friction converts the acoustic energy into heat.

Impact Noise Control
The sound of walking, banking, scraping furniture, etc. is transmitted to components and radiated as airborne sound into neighbouring rooms. The use of ReBond in floating floors, can reduce the structure borne noise.

Sheet’s Dimensions: 100 x 100 cm, thickness: 20 mm
Other dimensions and thicknesses upon request.
ISOLFON ReRub: Combines heavy surface mass, excellent elasticity and viscoelastic reaction of the compressed elastic particles.

ISOLFON ReRub is produced with a combination of recycled elastomer compounds, coming from the recycling end of life tyre rubbers (ELT), bonded with polyurethane glue. It can be applied to a wide temperature range and it also has remarkable mechanical resistance to impact, compression, friction etc. It is resistant to common chemical environments, moisture and oils.

**Dimensions**
Roll width 100 cm.
*(Other dimensions upon requests)*

- **Floor**: Installation as all traditional floating floor substrates
- **Walls**: Fixed with mechanical support (plastic nails) or appropriate glue. The joints between the sheets should be sealed with appropriate tape.

**APPLICATIONS**
- Floating floors, especially in large load applications (commercial and industrial areas, warehouses with vehicle traffic etc).
- Anti-vibration underlay sheet, specifically used in renovations where available space is restricted.
- Airborne noise insulation for walls, especially when used with dry wall.

**INSTALLATION**

**Acoustic Properties**

<table>
<thead>
<tr>
<th>Screed Weight (kg/m²)</th>
<th>85</th>
<th>100</th>
<th>115</th>
<th>130</th>
<th>145</th>
<th>160</th>
<th>175</th>
<th>190</th>
<th>200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness 3 (mm)</td>
<td>17.8</td>
<td>18.8</td>
<td>19.7</td>
<td>20.5</td>
<td>21.3</td>
<td>21.9</td>
<td>22.5</td>
<td>23.0</td>
<td>23.3</td>
</tr>
<tr>
<td>Thickness 5 (mm)</td>
<td>21.1</td>
<td>22.1</td>
<td>23.0</td>
<td>23.8</td>
<td>24.6</td>
<td>25.2</td>
<td>25.8</td>
<td>26.3</td>
<td>26.7</td>
</tr>
<tr>
<td>Thickness 10 (mm)</td>
<td>25.7</td>
<td>26.8</td>
<td>27.7</td>
<td>28.5</td>
<td>29.2</td>
<td>29.8</td>
<td>30.4</td>
<td>31.0</td>
<td>31.9</td>
</tr>
</tbody>
</table>

Estimation of impact sound attenuation level **ΔLw (dB)** (according to ISO 12354-2)
ISOLFON-FF is easy installed in a great range of applications where impact noise insulation on floating floors is required. It is produced from Expanded polyethylene cross linked foam, with density of about 28 kg/m³, which takes the shape of a rolled sheet. The structure of closed cells offers a greater deflection and rebound (after tension and release) due to the fact that air is trapped in the cells. Additionally it offers perfect resistance in water and humidity absorption.

Expanded polyethylene is flexible and compressible, doesn’t oxidize, is not affected by fungi or bacteria and is perfectly compatible with common building materials such as concrete, plaster, lime and sand. Their ingredients are eco-friendly and do not contain HCFC and harmful chemicals. Expanded polyethylene sheets can be applied underneath a number of different floor finishes, such as engineered laminated flooring in floating floor construction, laminate timber floor, concrete screed floor with ceramic tiles / marble finish, carpet, etc.

Dimensions:
- Rolls with 5 and 10mm thickness
- Other dimensions on request.

Utilization Temperature:
- -40°C +90°C

Thermal Conductivity:
- 0.035-0.04 Kcal/mh°C
- 0.10% kg/m²

Water absorption (EN12087:2002):
- 25%Compression >0.03 Mpa
- 50%Compression >0.07 Mpa
- 75%Compression >0.18 Mpa

Compression Resistance (ISO844):
- ISOLFON-FF.5: ΔLw = 19 dB
- ISOLFON-FF.10: ΔLw = 20 dB

Improvement of Impact Noise Insulation
(According to ISO 140.8 & ISO 717.2)
**SOUND ABSORPTION**
The ability of a material to absorb sound. The process by which sound energy is converted to heat energy.

**SOUND INSULATION**
The ability of a construction or building element to reduce noise transmission.

**VIBRATION ISOLATION**
The process of isolating a mechanical system from steady state excitations.
Our technical department (tech@alphacoustic.com) will be happy to assist you find the best solution to your sound insulation problems.