



## Description

**AYRLITE 2071** is an aluminium honeycomb panel **faced on one side with a micro-perforated aluminium sheet.**

The panel has outstanding low-frequency sound absorption. The sound absorption properties are unique and remarkable for such a low weight material. The microperforated surface is installed facing the noise source. Being all-aluminium, **AYRLITE 2071** also has excellent fire performance. Health and safety is excellent because there are no loose fibres. Although principally developed for high-performance marine vessel interior applications, **AYRLITE 2071** is also attracting interest in other marine sectors, rail and construction industries.

## Features

- Excellent low-frequency sound absorption.
- Fire resistant.
- Frequency of peak absorption can be tailored simply by selecting an appropriate panel thickness.
- Panels are manufactured to any thickness, from 6mm to 75mm.
- Aluminium honeycomb core meets the requirements of MIL-C-7438 for salt fog anti-corrosion performance.
- Face sheets are 5000 series aluminium alloy, for maximum strength and anti-corrosion performance.
- Attractive anodised or powder coated, microperforated aluminium facesheet. Wide range of colours available.
- Low weight.
- Free of any fibrous constituents.

- High stiffness and strength.
- Easy to fabricate.
- Recyclable.
- Patented.

## Applications

- Wall linings, ceilings, etc.

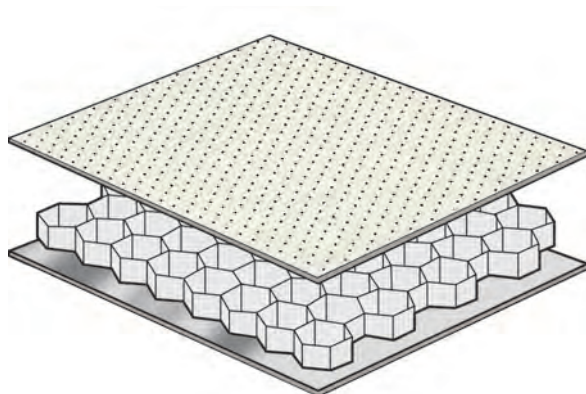
## Fabrication

**AYRLITE 2071** is easily cut and drilled with standard tools, such as circular saws, routers, etc. Negative rake blades are recommended for circular saws. Caution should be taken in case of aluminium burrs on cut edges.

Components and complete interiors can be fabricated using Ayres Composite Panels extrusions, cutters and polyurethane paste adhesives. Alternatively, traditional tongue-and-groove (mortice and tenon) methods can be used.

The cut-and-fold method can also be used to produce curves and bends: by cutting a strip of skin material from one face, folding to close the gap created and permanently bonding the gap closed using adhesive. Bends can also be produced by using a brake press to locally collapse the core.

**A CD is available, showing fabrication and assembly techniques.**



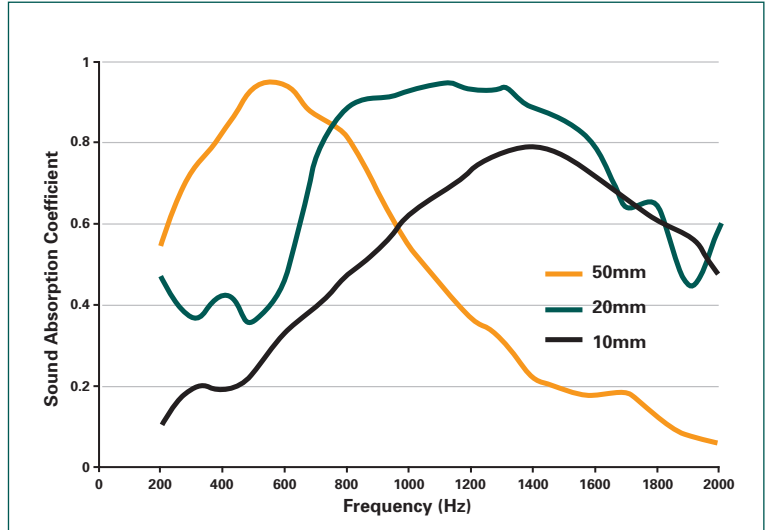
## 1. High Sound Absorption

**AYRLITE 2071** achieves very high sound absorption without using highly combustible materials, or conventional fibrous sound absorption materials. Therefore it has excellent fire, and health & safety characteristics

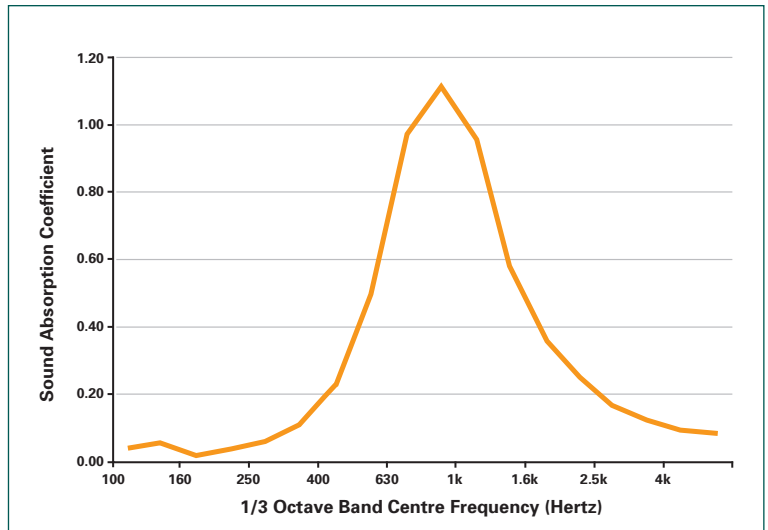
Furthermore, the peak absorption frequency of **AYRLITE 2071** can be tailored to the frequency range required, simply by selecting an appropriate panel thickness. The absorptive frequency range can be adjusted to as low as 500Hz, where effective sound absorption is difficult to achieve using traditional materials

The sound absorption coefficients, measured with a standing-wave tube, for three **AYRLITE 2071** panels with different thicknesses are shown in Fig 1.

Fig 2 shows a full scale test to AS/ISO 354-2006 on a 20mm panel. Weighted Sound Absorption Coefficient = 0.31. Noise Reduction Coefficient = 0.44.



**Fig 1. Sound Absorption Coefficient for Aylrite 2071 panel**



**Fig 2. Sound Absorption Coefficient for Aylrite 2071 panel**

## 2. Sound Transmission Loss

The sound transmission loss of **AYRLITE 2071** is high, given the low weight and thickness. Fig 3 shows the transmission loss of **AYRLITE 2071** panels with thickness of 10mm, 20mm and 50mm. Transmission Loss is over 10dB even at very low frequency.

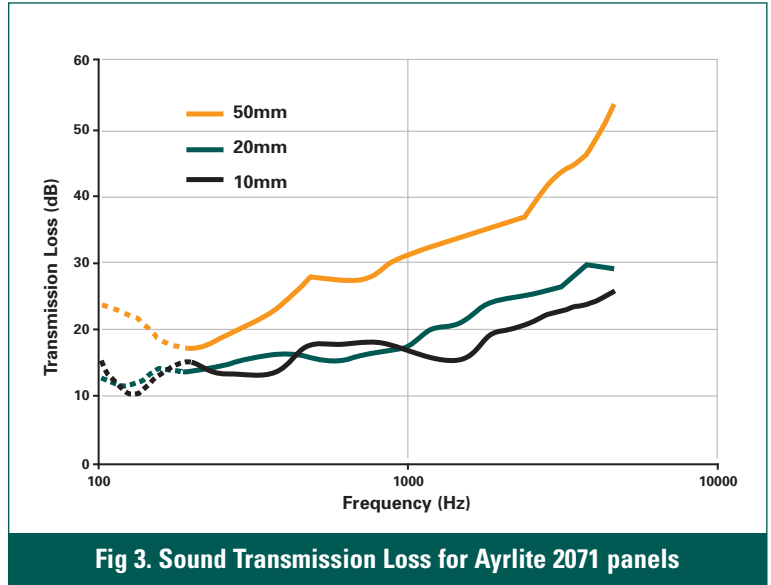


Fig 3. Sound Transmission Loss for Aylrite 2071 panels

## 3. Applications

**AYRLITE 2071** is a very effective sound absorption structure, which is able to reduce the interior noise or improve the interior acoustic quality. It is used primarily for wall linings and ceilings

Test results show **AYRLITE 2071** panels are very effective in reducing interior noise levels. Fig 4 demonstrates the reduction of interior noise by the addition of a single **AYRLITE 2071** panel in a small chamber (1.2 x 0.9 x 0.7m). The most noise reduction occurs in the frequency range corresponding to the effective absorption frequency range of the panels.

The total noise reduction in the chamber is proportional to the total absorptive area. More noise reduction will result if more surfaces are comprised of **AYRLITE 2071**.

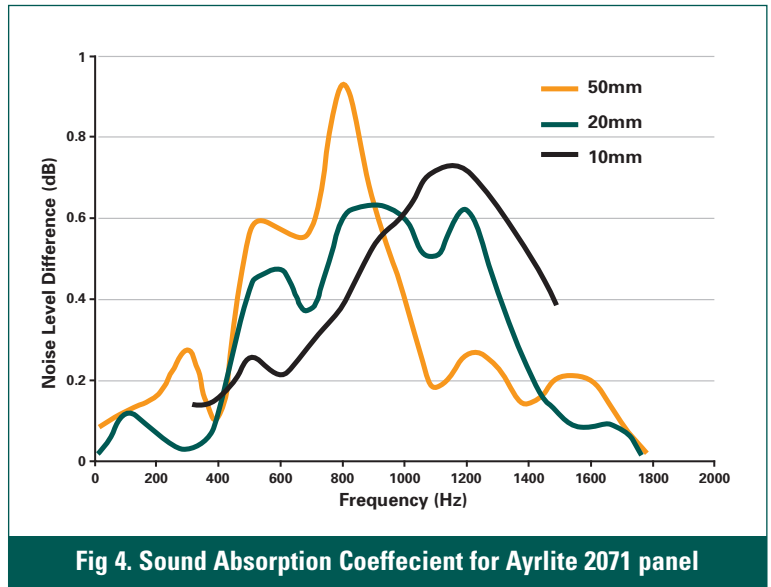


Fig 4. Sound Absorption Coefficient for Aylrite 2071 panel

## Physical and Mechanical Performance

Typical room temperature properties.

Thickness (mm)	Weight (Kg/m <sup>2</sup> )	Long Beam		Flatwise Tensile (MPa)	Flatwise Compression (MPa)
		Max Load (N)	Deflection at Max Load (mm)		
10	3.4	1038	24	367	2.6
20	3.9	1708	11	367	2.6
50	5.6	6222	3	367	2.6

Mechanical test procedures to MIL-STD-401

## Availability

Standard Dimensions
2400 x 1200mm x any thickness

## Safety

As with cutting operations on most materials, avoid inhalation and eye contact with machining dust. Wear protective equipment such as ear defenders and safety glasses during any cutting operations. Use machine guards. Wear gloves to avoid cuts. Wash hands before eating, drinking or smoking and after finishing work.

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*Lighten Up!*

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