



Technical Specifications

# Polyimide Acoustic Foam

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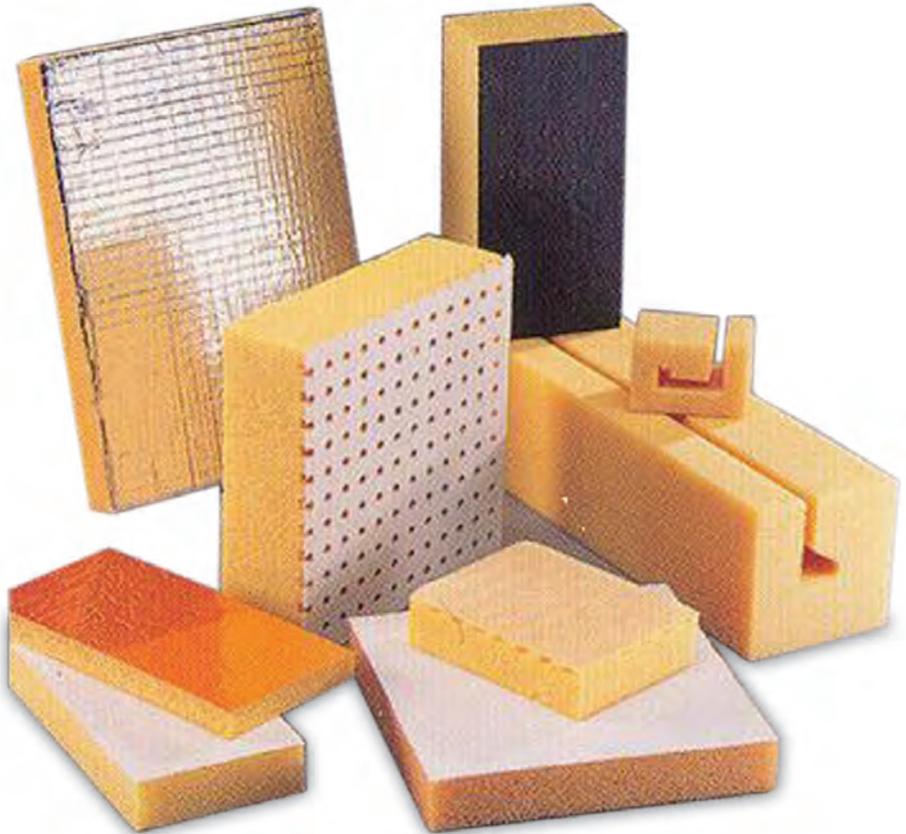
Sounddown LCF Polyimide Foam is an engineered flexible foam insulation for acoustical and thermal applications. The extreme light weight and highly fire resistant nature of Polyimide foam makes it ideal for a range of applications. As a flexible foam product Sounddown LCF can be installed far more easily than fibrous board alternatives such as fiberglass and mineral wool.

Polyimide foam is extremely light, with a density of 0.38lbs per cubic foot as opposed to other traditional insulation materials that range from 1.5lbs to as much as 8lbs per cubic foot. The resulting weight savings is important for high speed naval and yacht applications as it can reduce weight by a factor of better than 20 times when compared to 8lb mineral wool. Sounddown LCF should be considered as an important component of any weight savings programs designed to increase range or speed.

For displacement and semi displacement vessels the weight savings offered by Sounddown LCF can assist in maintaining a shallow draft or improve stability through weight reduction on upper decks.

The high fire resistance of LCF makes it acceptable for use in many applications where other foam insulations are disallowed. Polyimide omits virtually no smoke or incapacitating toxic by products when exposed to open flame. These low smoke and flame characteristics make Sounddown LCF an applicable substitute in a number of applications where only fibrous insulation would otherwise be used. Polyimide is cost effective to handle as it is light, easy to cut and handle and readily adapts to fabrication with other materials.

Sounddown LCF foam meets the requirements of DOD-I-24688, Lloyd's High Speed Craft (as a fire resisting material) and has been accepted by MCA as



- DOD-I-24688, Ty 1, Ty II cl 1, Ty II cl 2
- Lloyds & MCA approvals\*
- Lightweight
- Superior Fire Resistance

- Proven Durability
- Easily Installed
- Outstanding Thermal & Acoustical Insulation Values

not readily ignitable. Fire rating of faced and fabricated LCF products vary and are tailored to specific applications. Our knowledgeable staff can help recommend the best configuration depending on your acoustic, thermal and class approval needs.

\* Not all configurations carry approvals.



2012.2.A

8"ID (203,2mm) ENGINE EXHAUST PIPE

<p><b>SOUNDOWN</b> CORPORATION</p> <p>STAINLESS STEEL MATERIALS AVAILABLE PHONE: 408.758.1800 WWW.SOUNDOWN.COM</p>		<p><b>SOUNDOWN CORPORATION</b></p> <p><b>ACOUSTIC INSULATION DETAIL</b></p>	
<p>DWG BY: R. HEITZ</p> <p>SCALE: 1/8" = 1"</p> <p>DATE: 09-20-10</p> <p>SHEET: 1 OF 1</p>	<p>SIZE: A</p> <p>PART NO.: INF1010</p> <p>DWG NO.: 1010</p>	<p>THE INFORMATION HEREIN IS THE PROPERTY OF SOUNDOWN CORP. ANY COPYING TRANSMITTAL TO OTHERS AND ANY USE EXCEPT THAT FOR WHICH IT IS PROVIDED IS PROHIBITED WITHOUT THE WRITTEN PERMISSION OF SOUNDOWN CORP.</p>	

**The Material**

The standard material comes in 2' x 4' boards. Standard thicknesses are 1/2"; 1"; 1.5" and 2" although custom thickness are available to meet acoustical design specifications.

**Barrier Septum Construction**

Polyimide foam is also offered as a composite insulation material utilizing a mass-loaded vinyl barrier (Tuff-Mass) or lead Septum to increase its sound transmission properties.

**Barrier Surface Density**

- 0.5 lb/sf (2.4 kg/m<sup>2</sup>)
- 1.0 lb/sf (4.8 kg/m<sup>2</sup>)
- 1.5 lb/sf (7.3 kg/m<sup>2</sup>)
- 2.0 lb/sf (9.7 kg/m<sup>2</sup>)

**Typical Physical Properties, unfaced**

	Test Method	SI Value	U.S. Value
<b>Mechanical</b>			
Density	ADTM D 3574, Test A	6 kg/m <sup>3</sup>	0.38 lb/ft <sup>3</sup>
50% Compression Force Deflection	ADTM D 3574, Test C	9kPa	1.3 lb/in <sup>2</sup>
Tensile Strength	ADTM D 3574, Test E	≥ 6 kPa	≥ 8.5 lb/in <sup>2</sup>
<b>Thermal</b>			
Thermal Conductivity (k)	ADTM C 518 at mean Temperature of 24°C (75°F)	ε 0.042 W/(m · K)	ε 0.29 (BTU · in)/(hr ft <sup>2</sup> · °F)
Thermal Resistivity (r)	ADTM C 518 at mean Temperature of 24°C (75°F)	≥ 24 (m · K)/W	ε 3.4 (hr ft <sup>2</sup> · °F)/(BTU · in)
<b>Flammability</b>			
Radiant Panel Flame Spread Index	ASTM E 162	£ 5	£ 5
Specific Optical density of Smoke, DM	ASTM E 662	3	3
Non-flaming		5	5
Flaming			

**Typical Acoustic Properties, unfaced**

**Acoustical Absorption Coefficients**

(sabins/ft<sup>2</sup> or metric sabins/m<sup>2</sup>)

ASTM C423 and E 795, Type A Mounting

Thickness	Frequency (Hz)						NRC
	125	250	500	1000	2000	4000	
25mm (1 inch)	.11	.21	.56	.98	.97	.81	.70
50mm (2 inches)	.32	.53	.94	1.02	.87	.90	.85

All statements herein are expression of opinion that we believe to be accurate and reliable, but are presented without guaranty or responsibility on our part.

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