



Technical Specifications Vinyl/Foam Insulation

ENGINE
SERVICE CHANNEL

SOUND SHIELD

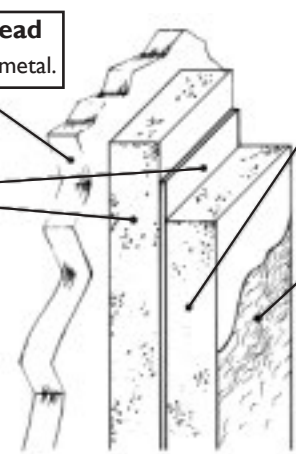
PERFECT SOUND

Enclosure Bulkhead
Wood, fiberglass, or metal.

Absorption Layer
Absorbs reverberating sound in the machinery space by filtering sound waves through fine porous foam or fiberglass.

**Barrier Layer
Decoupler Layer**
The combination of the barrier and the decoupler layer covered by a thin attractive vapor barrier facing acts as a second wall, in addition to the machinery space enclosure. This wall reflects noise back into the absorption layer.

Film Facing
The attractive easy-to-clean surface protects the absorption material from spills, mists, and vapors.

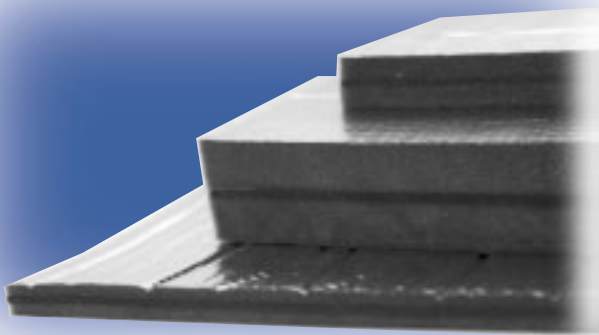


Vinyl Foam Barrier Composite

SOUNDOWN'S Vinyl/Foam composite insulation is an effective treatment for airborne noise that radiates from engines, and other machinery. The standard composite consists of a layer of mass loaded vinyl sandwiched between two layers of polyether fire retardant foam covered by a thin attractive vapor barrier facing. The composite is designed and manufactured specifically for attenuation of sounds from machines such as engines, generators, pumps, and other marine equipment which may have significant base and mid-range frequency components. Our construction centers the acoustic vinyl between equal thicknesses of foam, front and back. This configuration optimizes the mid and bass fre-

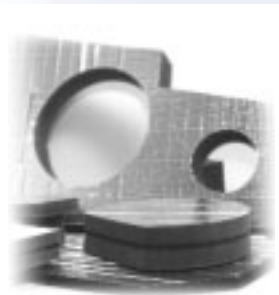
quency sound isolation in comparison to other materials with only a thin foam layer on the backside; solely optimized for "tinier" high-frequency noise.

Vinyl/Foam composite insulation from SOUNDOWN is available in a number of formats for optimal sound attenuation within the available space. Soundown is able to tune this attenuation by utilizing barrier material of 0.5 lb., 1 lb., 1.5 lbs., or 2 lbs. per square foot in our composites. In areas where hatch and bulkhead clearances do not allow the use of thicker composites we may substitute heavier barrier material so that performance is not compromised. Likewise, in weight critical applications, lighter barriers may be used in thicker composites.



Above: SOUNDOWN manufactures a wide range of insulation to meet specific needs.

Left: SOUNDOWN'S custom cutting reduces labor, scrap and shipping costs. SOUNDOWN technicians work with digital files, drawings and complex patterns.



SOUNDOWN CORPORATION
ACOUSTIC INSULATION DETAIL

© (203,2mm) ENGINE EXHAUST PIPE

Barrier Foam Composites

Barrier

| | | | |
|------------------------|-----------------------|-------------------------|-----------------------|
| .5 lb./ft ² | 1 lb./ft ² | 1.5 lb./ft ² | 2 lb./ft ² |
| 1/16" | 1/8" | 3/16" | 1/4" |

Decoupler Layer

Polyether Polyurethane
Flexible Foam-1.6 lb/ft³
220+ pores/inch
1/2"-3" thickness available

Absorber Layer

Polyether Polyurethane
Flexible Foam 1.6lb/ft³
220 + pores/inch
1/2"-3" thickness available
1.5 mil Ripstop Mylar Vapor Barrier Facing

Typical Physical Properties

| | |
|---|------------------------|
| Thickness | 1/4" to 4" |
| Weights (per ft ²) | .55 lbs. to 2.5 lbs. |
| Flammability, foam UL 94 HF-1 MVSS 302 | PASS ----- MEETS |
| Specific Gravity (Barrier) ASTM D 798 | 1.80 |
| Hardness (Barrier) Shore A 2 ASTM D 2240 | 90 Nominal |

| | |
|--|--------------------|
| Stiffness, MPA (Barrier) ASTM 749 | 19.60 |
| Tensile, PSI (Barrier) ADSTM D 412 | 407 |
| Elongation, % (Barrier) ASTM D 412 | 120 |
| Tear, lbs/1" (Barrier) ASTM D 624 | 77 |
| Temp Range, Fahrenheit (Composite) | -40 to 255 degrees |

Typical Acoustic Properties

| Octave Band Center Freq. Hz | Transmission loss of Composite by Weight Per ASTM E90-90 | | Sound Absorption Per ASTM C 423-84A |
|--------------------------------|---|-------------------------|--|
| | 1 lb./ft ² | 1.5 lb./ft ² | 1" Foam, Mylar Face |
| 125 | 14 | 18 | .14 |
| 250 | 17 | 21 | .37 |
| 500 | 22 | 25 | .69 |
| 1k | 28 | 32 | .61 |
| 2k | 36 | 37 | .79 |
| 4k | 44 | 46 | .48 |
| STC | 28 | 30 | |
| NRC | | | .60 |

* Transmission loss as published by SOUNDOWN and other manufacturers of composite insulation represent a test of the material alone without panel to it might be attached to in service.