armacell
engineered foams

THE MAKERS OF
Armaflex®

ArmaFoam® SOUND

High performance sound absorption for a quieter environment

What is noise and who is affected by it?

Environmental noise, which is often defined as unwanted sound, is generated by man's activity and effects the environment in which we live.

'Sound can be generated by a number of sources and can be perceived as noise by humans in many different circumstances. Environmental noise is the sound generated by human activity (road traffic, railways, air transport, industry, workplace, recreation and construction) and perceived in the work place or domestic environment.' [1]

Almost everyone is effected by noise. We experience it in our homes and in our work place, during our recreational time and when we're travelling. As technology progresses, so too does our desire for higher standard of living. A quieter environment, free from the stress that noise causes, is one way to improve life quality.

'The effect of noise is to create annoyance, interference with communication and, in some cases, mental stress, high blood pressure, severe short- and long-term hearing damage, and even death.' [1]

The cost of noise is considerable:

'Present economic estimates of the annual damage in the EU due to environmental noise, range from EUR 13 billion to 38 billion. Elements that contribute are reduction of housing prices, medical costs, reduced possibilities of land use and cost of labour days.' [1]

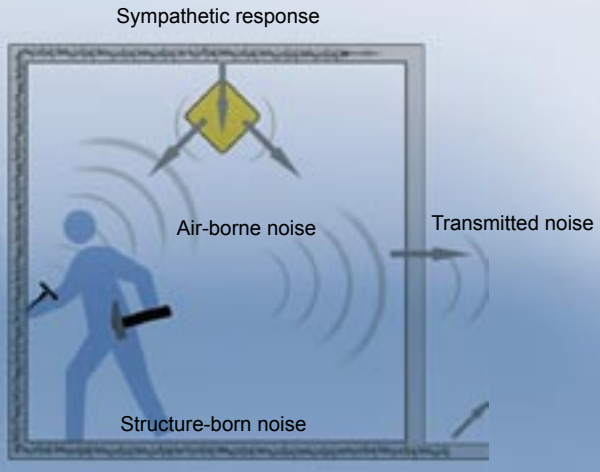
Understanding the nature of noise

The noise given off by a particular source can usually be categorised into one of the following forms:

Structure-borne noise
This is the sound generated from a vibrating source or impact event. The acoustic energy created by these vibrations is transmitted into the structure of a building (e.g. floors, walls, pipe-work etc,) or into mechanical elements (e.g. metal frames, panel work, supports etc.) This energy travels through solid structures and is released as air-borne noise at different locations within the building or mechanical system.

Air-borne noise
This is the sound that travels through the air and into the surrounding environment. In closed environments such as rooms and enclosures, air-borne sound may reverberate and increase the levels of noise both in and outside the contained space.

Most forms of noise will contain contributions from both air-borne and structure-borne sound. Although measures can be taken to limit structure-borne components, such as by isolation and damping, air-borne sound can be treated with the use of absorbing materials. Armafoam Sound has an extremely high absorption performance per unit thickness, offering a solution for the most demanding applications.



"Understanding the nature of sound is the key to effective noise control"

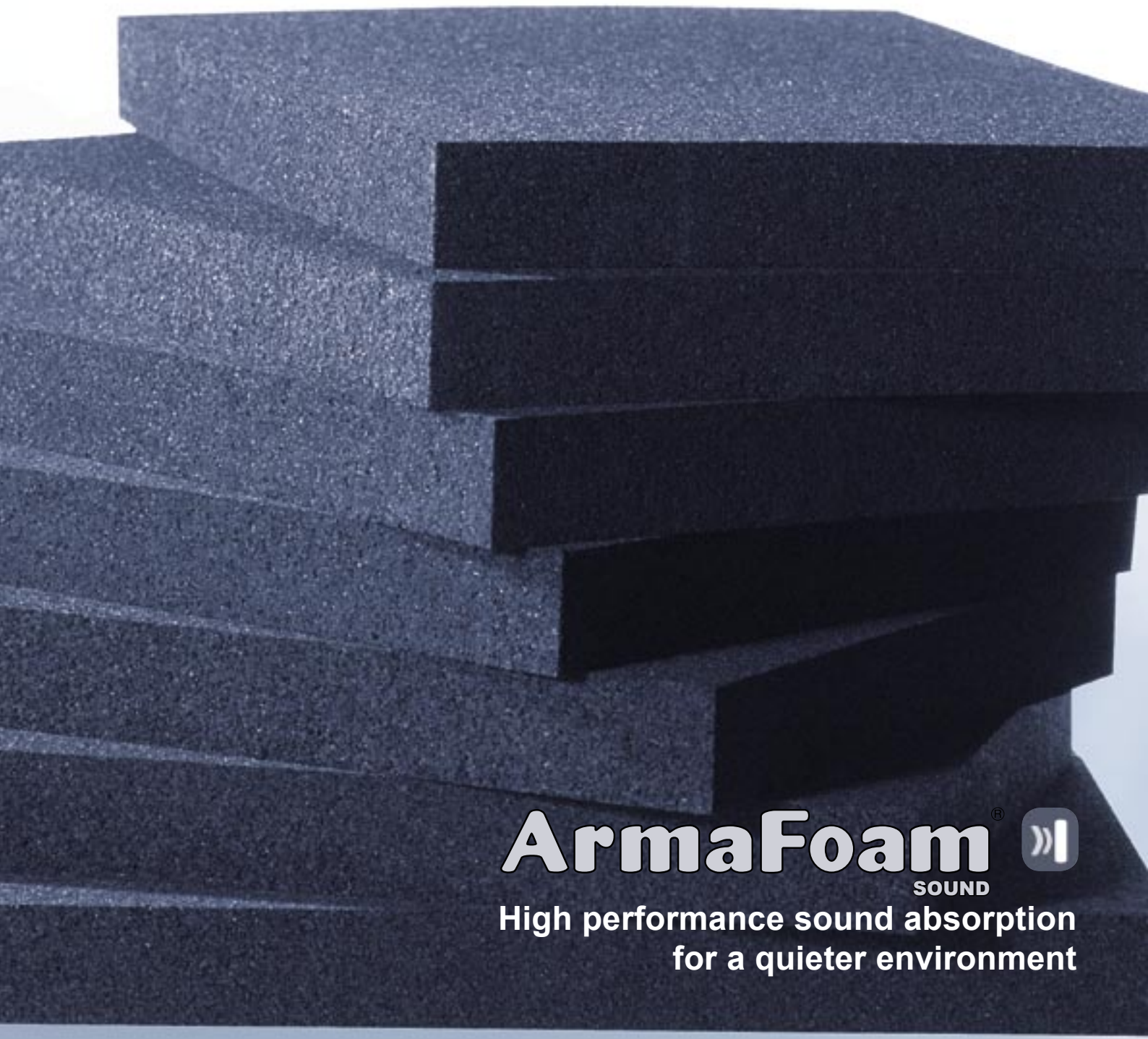
[1] Extracts taken from the EC Directive – 2000/0194/(COD) – 'Relating to the assessment and management of environmental noise'.

Armafoam Sound - A new approach to noise control

Armafoam Sound is a high performance acoustic absorber that is designed for demanding applications. Through its structure, formulation and composition this material can offer around twice the acoustic energy absorption in a given thickness when compared with traditional materials. This allows designers and specifiers to reduce the space that they consume and to reduce the noise that users experience.

Armafoam Sound is the result of 4 years of research into poro-elastic materials that exhibit potential acoustic absorption capabilities. By modelling and optimising the material's microstructure, this product is designed to have very high levels of absorption across the frequency range.

Armafoam Sound can also be specially designed to meet the specific needs of the customer by being designed to focus its absorption at particular problem frequencies. This allows for a greater enhancement of the products noise control capabilities.



For more information visit our website www.armacell.com/noisecontrol

Application Areas_

HVAC_
Fan-coil units, duct linings, cabinet linings and chiller systems

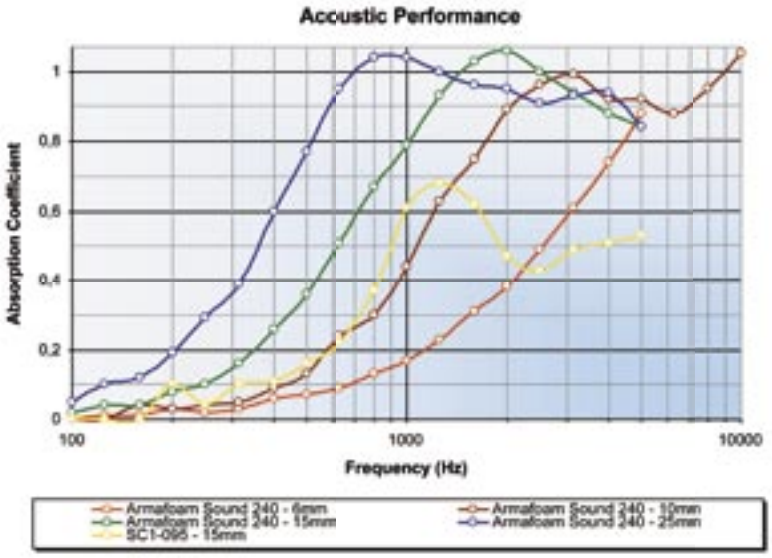
General Mechanical/Industrial_
Enclosure and cabinet linings, reverberation control

Heavy Automotive_
Engine component lining and under bonnet insulation

Marine & Offshore_
Engine room and accomodation areas, pipeline insulation

White Goods_
Internal side panels and air intake linings

Typical Performance Table



This chart shows the acoustic absorption coefficient for Armafoam Sound 240 measured at different thickness*. Additional data is also included for the absorption coefficent of our ArmaFoam SC1-095 product am 15 mm **

* Measured in accordance with the ISO 354 measurement standard at the School of Acoustics and Electronic Engineering, Salford University, UK

** Measured in accordance with the ISO 10534 (pt2) measurement standard at the Acoustic Group, Bradford University, UK

Application	Typical Reduction	Thickness of Armafoam Sound	Legislation met
Pipelines	Up to 55dB	Combination System Armafoam Sound & Arma-Chek Systems	Class A, B & C ISO 15665 Class A, B, C & D Shell DEP Spec. No. 31
Waste water pipes	Up to 20dB	Combination System Armafoam Sound & Arma-Chek Systems	na
Washing machines	8dB	10 mm	na
Vacuum cleaners	10db (peak)	6mm	na
General Enclosures	Up to 25db	10-25mm	na
Generators	Up to 20dB	15mm	European Noise Standards
Telecommunication	Up to 20dB	15mm	ETSI 300 (Noise Standards)

Although these figures represent actual figures achieved in tests, they should only be used as a guide. Armacell cannot guarantee the performance of the product as all situations are different and should be treated separatly. Actual results for a particular configuration may be worse or better than those shown here.

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