



Acousta-fil[®] CE



High Performance Sound Absorbtion Media for
Auto Exhausts





Introduction

Acousta-fil is a system of filling exhaust mufflers with a “customisable”, high performance sound absorption media.

The system is designed to provide controlled expansion on initial heating and is intended to fill complex voids with a selection of absorption materials to a pre-determined density.





Introduction (cont.)

The method we use in the manufacture of Acousta-fil allows a level of texturisation not possible with existing methods.

Acousta-fil CE not only exhibits outstanding absorption properties but also very high thermal insulation characteristics.





Acoustafil Fabric



Plain profile





Typical Application

Cylindrical Muffler with offset perf tube



Before Heating



After Heating





Performance

- Excellent sound absorption, In our tests, Acousta-fil CE consistently outperforms Basalt, “Blown in” roving and pre-forms

(often Acousta-fil CE matches or exceeds the performance of traditional fills at a much lower density, less weight = less cost)





Performance Cont.

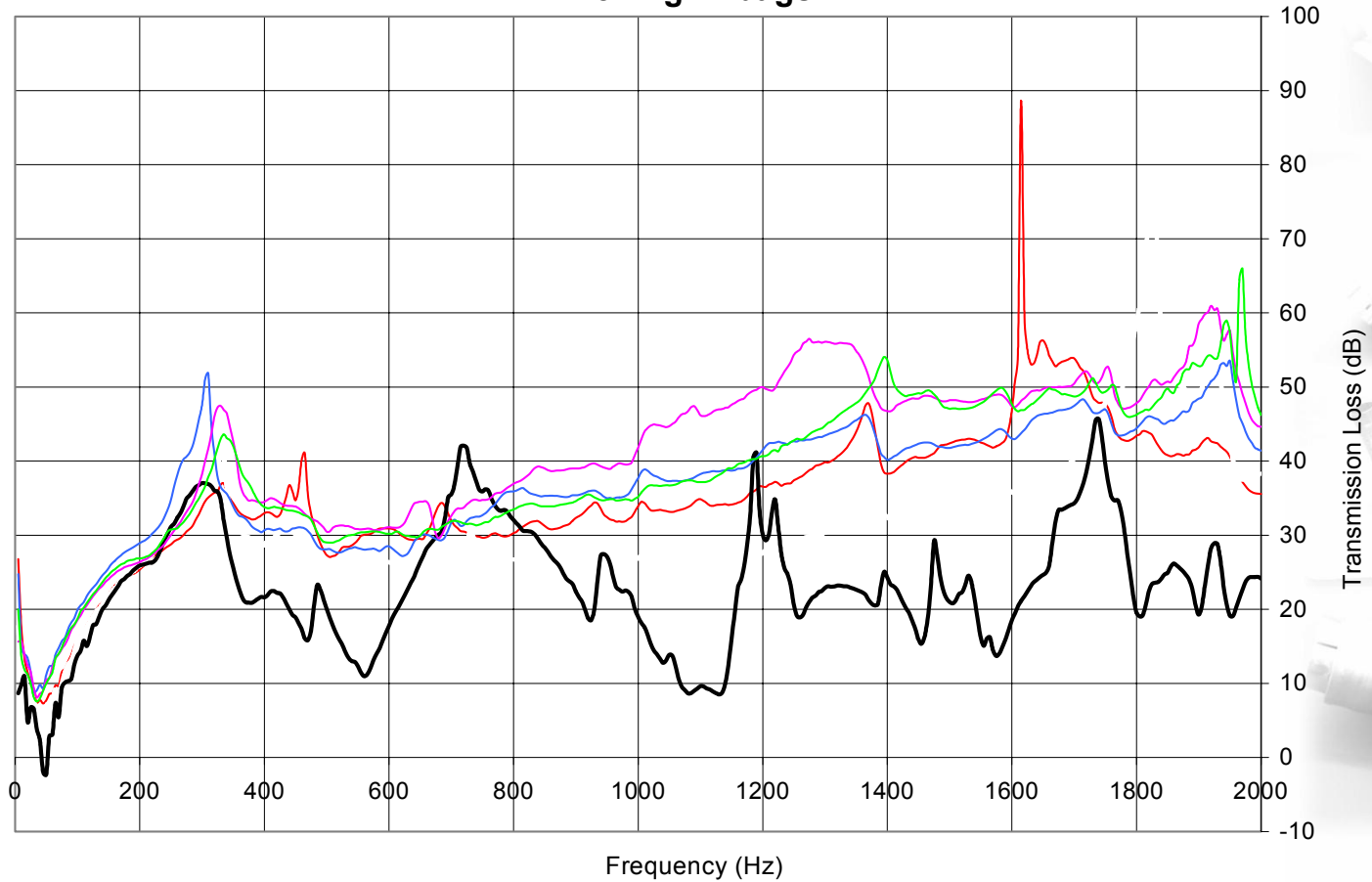
- The unique construction allows the product to be optimised for each application e.g for maximum absorption over a specific range of frequencies





Comparison Blown in Roving

Comparison Acoustafil CE in Clamshell Muffler originally filled with blown in roving in bags

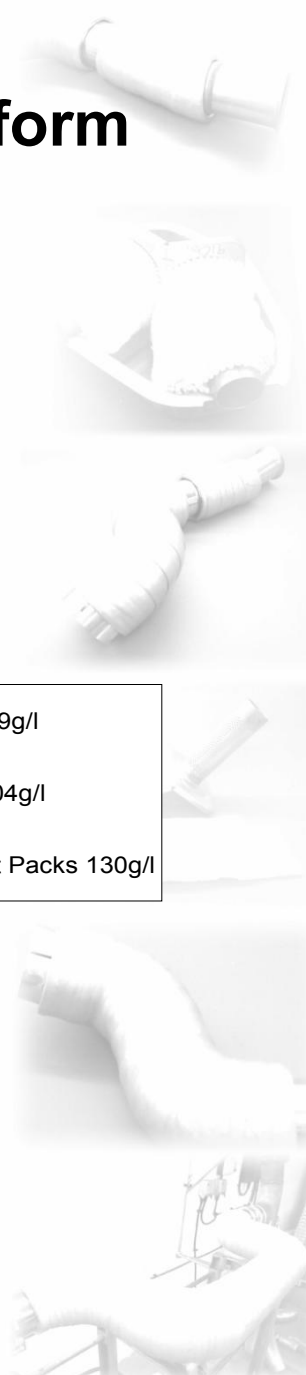
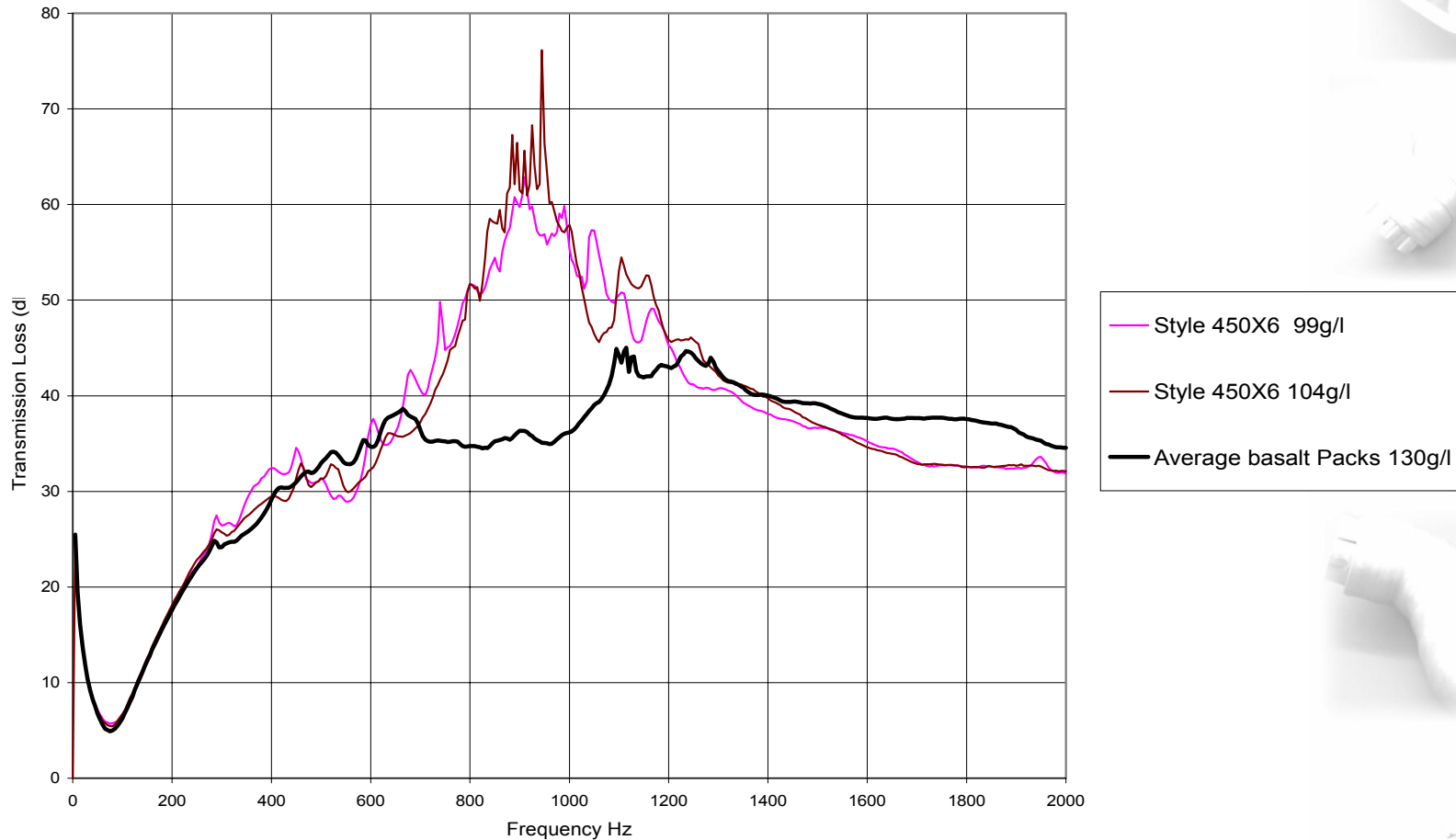


- Original Fill Roving in Bag unexpanded
- Empty Can
- Original fill bag removed 950g 112g/litre
- Acoustafil 550X6 949g
- Acoustafil 550X6 860g
- Acoustafil 550X6 745g



Comparison Basalt Pre-form

Comparison with Acoustafil CE and Basalt Preforms in intermediate clamshell muffler





Advantages 1

- Made from continuous filament fibre
- Unique construction allows for accurate control of finished density
- Easily installed in confined spaces even in applications with restricted access such as resonators





Advantages 2

- Contains no particulate or short fibres often associated with Basalt and staple glass wool
- Can be manufactured in C, E, or S grade glass fibres
- User friendly format, easily handled, soft to touch and with no loose fibres





Advantages 3

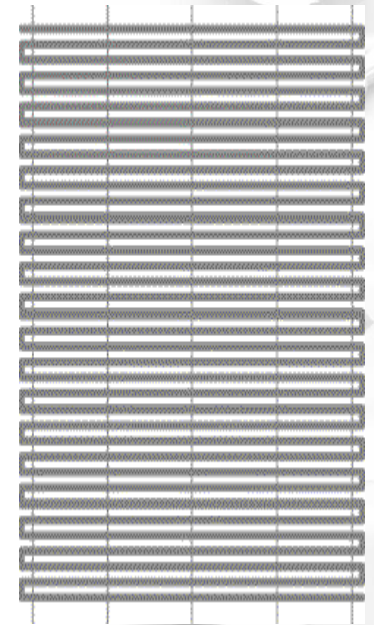
- Can be supplied pre-shaped to form a 3 dimensional pack
- Supplied ready to install with no expensive equipment required
- Cost effective
- Environmentally friendly
- Uses CE technology





Construction

- Acousta-fil consists of highly voluminised continuous filament glass fibre yarns
- These yarns are then processed on purpose built machines using low melt catch threads to compress and retain the fabric



Plain Profile



Active Fill

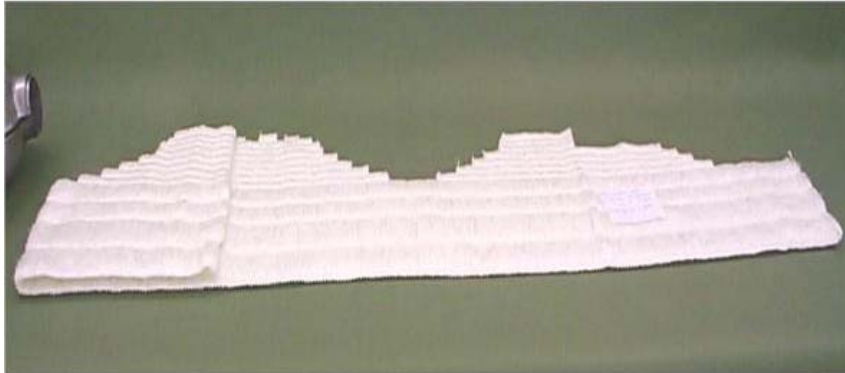
- Acousta-fil will expand on initial heating. The synthetic catch threads melt (130C or 80C for the optional low melt version) and release the fibre to fill the chamber
- Acoustafil can be supplied in original densities of between 130kg and 650kg depending on the required amount of expansion





Clamshells

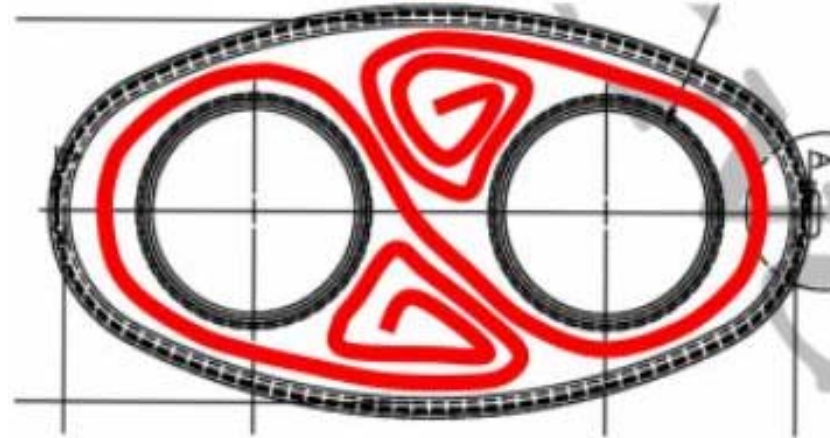
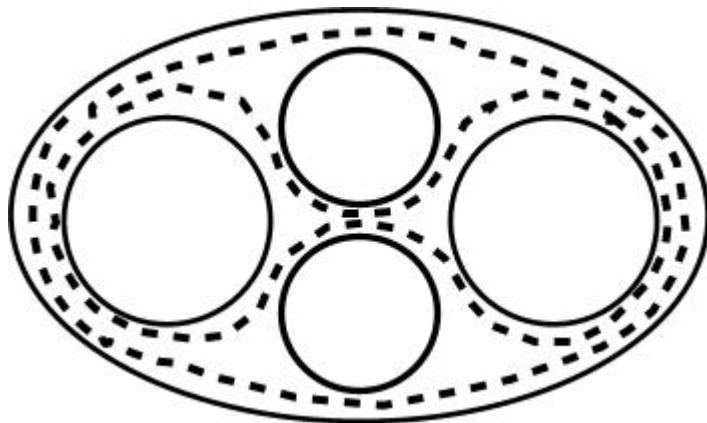
- For clamshell applications Acousta-fil can be knitted to a shaped profile that can then be folded to form a 3D pack





Installation

- Acousta-fil is particularly useful where the muffler has complex internal tube arrangements as sketch below.





Fibre orientation

- With Acousta-fil the orientation of the fibre is always across the perforations which prevents fibre blowout.





Availability

Acousta-fil is knitted to width e.g. muffler length and supplied in the following options:

- As pre cut lengths (for small silencers)
- Pre-folded as packs (clamshells etc.)
- On the roll with cut off points pre determined (plain profile only)





Pack Design

- Sound absorption can be effected by the shape of the muffler and fill density.
- Our testing facilities include transmission loss equipment which allows us to predict optimum pack densities and compare absorption data with alternative pack methods





Testing



Transmission loss test equipment





Future Development

- Ongoing development of catalyst support mat utilising the unique expansion and thermal insulation characteristics of Acousta-fil
- Further optimisation of Acousta-fil with mixed filament diameters and high temperature versions for performance vehicles

