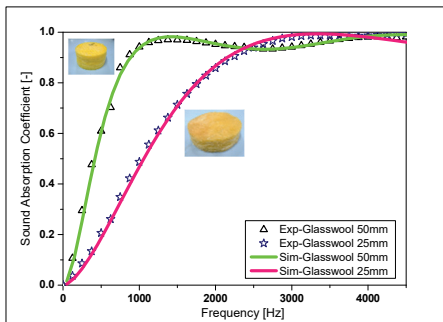
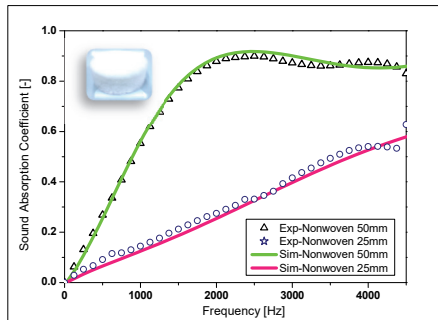


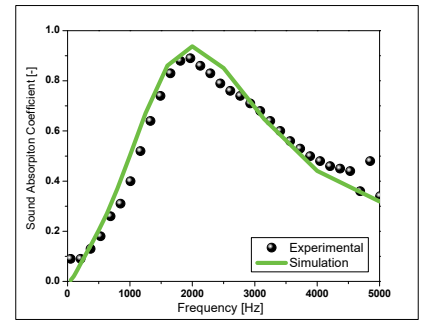
Alfa Acoustics α - Sim is a simulation software for predicting acoustic performance of acoustic materials used in Automotive or Architectural Acoustics. It is a simple user friendly software which is based upon mathematical modeling of acoustic materials and uses physical parameters like Airflow resistivity – single parameter or with other number of parameters like porosity, tortuosity and characteristics lengths. It can also take fiber denier as an input to predict sound absorption and sound transmission loss of fibrous materials like Glass wool or Mineral wool or Polyester felts.



Simulation of Sound Absorption for Glass wool - Double Thickness



Simulation of Sound Absorption for Polyester Felt - Double Thickness



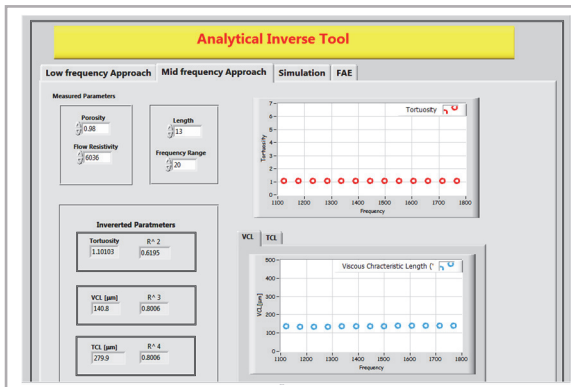
Simulation of Sound Absorption for Composite Materials

Field of Application

- Foam - open cell, metallic, chipped foam, etc.
- Fiber - glass wool, glass fiber, felt, cotton, fabrics, etc.
- Resistive Screens, Fabrics, Perforated Plates, Films, Foils, etc.
- Viscoelastic and sound deadeners

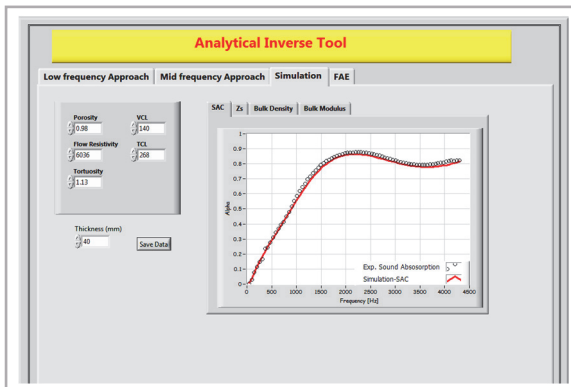
Salient Features

- Useful for Manufacturers, Suppliers, Architects, Engineers
- Low Cost and Easy to use
- Gives NRC and STC values within seconds
- Prediction for Normal as well as Random Incidence
- Useful for In-house quality control
- Uses measured flow resistivity or fiber denier as an input
- Predicts effects of Scrim, foils and films also
- Possible to predict acoustic performance for different thicknesses without manufacturing actual material
- Saves time and Cost



α - Inverse is a simple and powerful tool to get intrinsic parameters of acoustic materials. Acoustic performance of sound absorbing porous materials is governed by its intrinsic parameters (Biot Parameters). These parameters are very important in material - component - product level simulation process.

α - Inverse provides a simplest and easiest way to get these Biot parameters with desired accuracy. It works with ASTM E1050 / ASTM E2611 sound absorption and transmission loss measurement systems and only requires porosity as a measured parameter.



Computed Properties

- Airflow Resistivity
- Tortuosity
- Viscous Characteristic Length (VCL)
- Thermal Characteristic Length (TCL)

Field of Application

- Simulation – During simulation in softwares like α -sim, NOVA, VAOne, Virtual Lab, SEAM, etc.

Materials to be Tested

- Foam - open cell, metallic, chipped foam, etc.
- Fiber - glass wool, glass fiber, felt, cotton, fabrics, etc.

Advantages

- Errors are below than 5% compared to measurement
- Quick and simple
- Saves huge cost and time

Technical Validation of α - Inverse

Comparison of Experimental and Inverted Parameters		
Parameters	Exp.	Inverse
Airflow Resistivity	5359	6036
Porosity	0.98	0.98
Tortuosity	1.1	1.11
VCL	100	125
TCL	240	295

