The University Of Sheffield.

Electrospun Polymers as Acoustic Absorbers

SAPEM 2017, Le Mans

A WORLD TOP 100 UNIVERSITY

Aims

- Maximise absorption of material, but…
- Has to be
  - Thinner
  - Lighter
  - Less dense
  - (Ideally) cheaper

Solution

- Nanofibrous membranes, added to substrate
  - Membranes electrospun from PET
  - Characterised via SEM, and acoustically
- Allows decreased thickness, density, and weight
  - …definitely doesn't meet cost!

Key Results

- Process allows tailoring of thickness, and fibre diameter
  - Diameter ranged from 70-100nm
  - Thickness ranged from 12-220µm
- The maximal increase in absorption coefficient of 100%
  - Membrane V + melamine, 500-2500Hz
- Greatest performance gain seen in mid-range frequencies.
  - Good news for automotive and petro-chemical