

DuPont Separations Solutions

Next Generation of Cabin Air Filtration

DuPont –Hyundai Product and Technology Fair

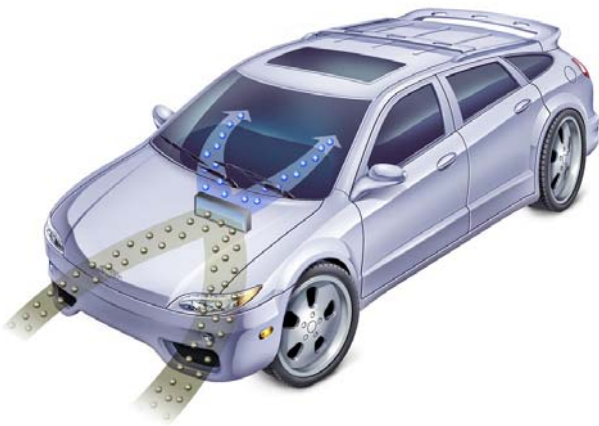


DuPont Technology

Applications

DuPont Hybrid Membrane Technology

**Automotive Interior Air Filters (Cabin Air Filters), Fuel Filters, Engine
Air Intake Filters, Engine Oil Filters**



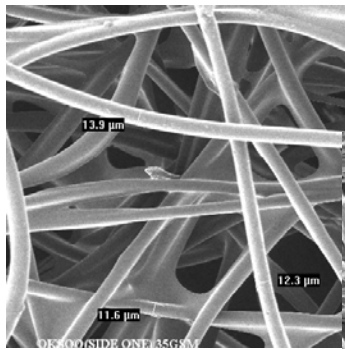
The DuPont Technology Advantage

- Consistent filtration performance over time with no declining efficiency compared to traditional electrostatically charged media.
- Increased filtration efficiency at the same pressure drop due to very large surface area (20–30x vs. traditional fiber media) and very small pores/voids.
- Lower pressure drop at same efficiency provides better energy utilization

DuPont Hybrid Membrane Technology

DuPont HMT is a “membrane-like” sheet product composed of continuous sub-micron fibers with resultant sub-micron to low micron pores and high surface area.

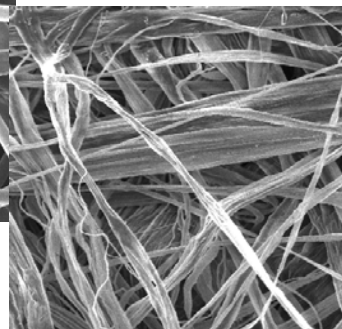
DuPont HMT fills the gap between nonwovens and microporous membranes by offering an optimum balance of flux and barrier performance



Spunbond

70*

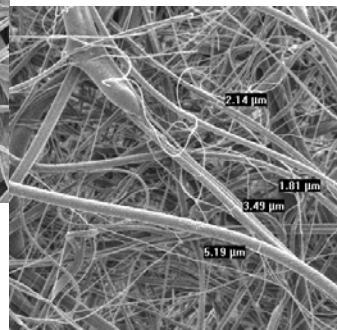
16 microns
0.3 m²/gm**



Flashspinning

400

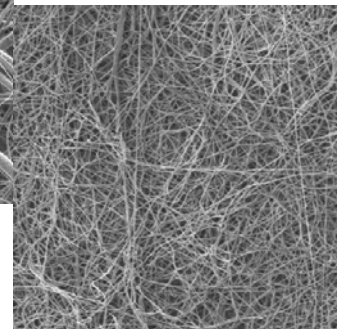
10 microns
1 m²/gm



Meltblown

4,000

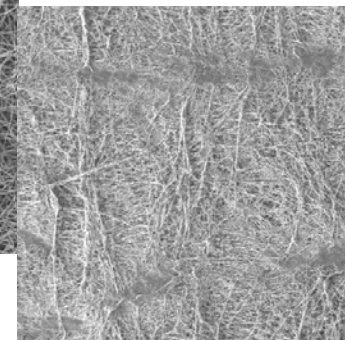
3 microns
2 m²/gm



Neon

110,000

0.4 microns
11 m²/gm



Ref:Gore PTFE

1-2 million
.08-.09 microns

Notes:

* Fibers Per Square Centimeter

@ 1 gm Basis Wt.

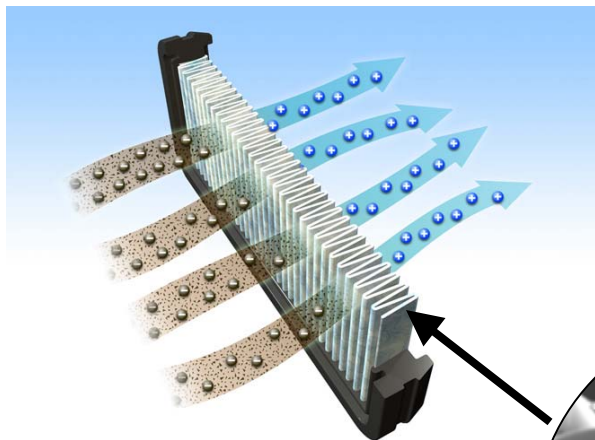
** surface area

**DuPont Technology
Concept**

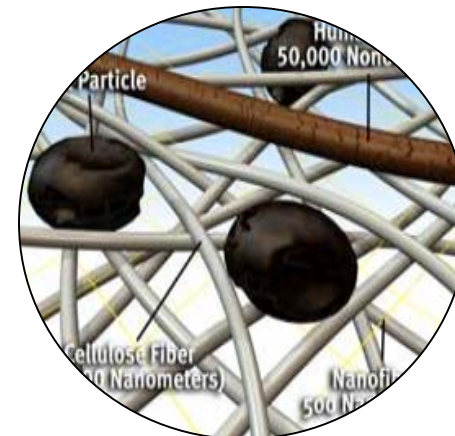
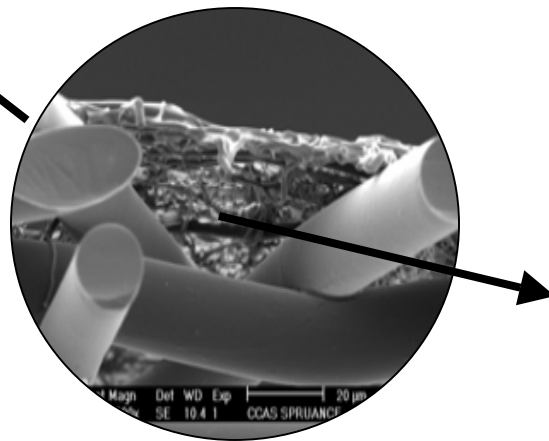
DuPont Hybrid Membrane Technology combined with traditional nonwoven substrates to produce the highest efficiency and lowest pressure drop media on the market

**DuPont Technology
Portfolio**

**Gen I. Finished Particulate Filters, Finished Carbon Filters
Gen II. Antimicrobial Functionality**



Captures fine dust, pollen, pollutants, allergens and other sub-micron airborne particles to improve passenger comfort



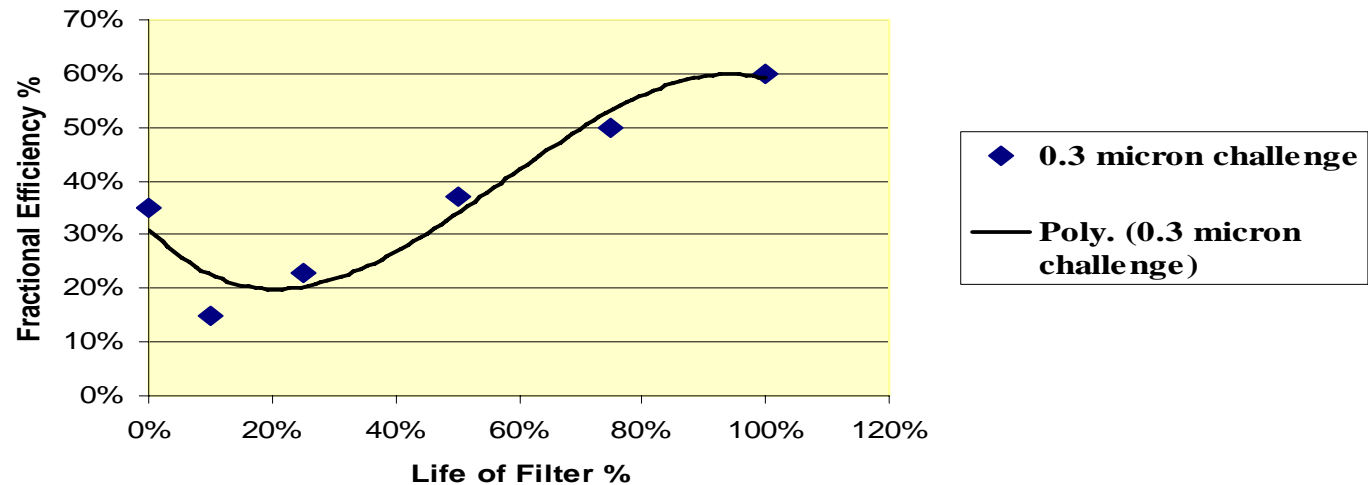
Competitive Materials

Composite structures consisting of spunbond and meltblown materials
with electrostatic treatments

Deficiencies

Limited filtration efficiency and unsustainable performance

**Charged Cabin Air Filter Performance Loss
from Dust Loading**
Fleetguard Data 250 cfm flow KCl test Dust



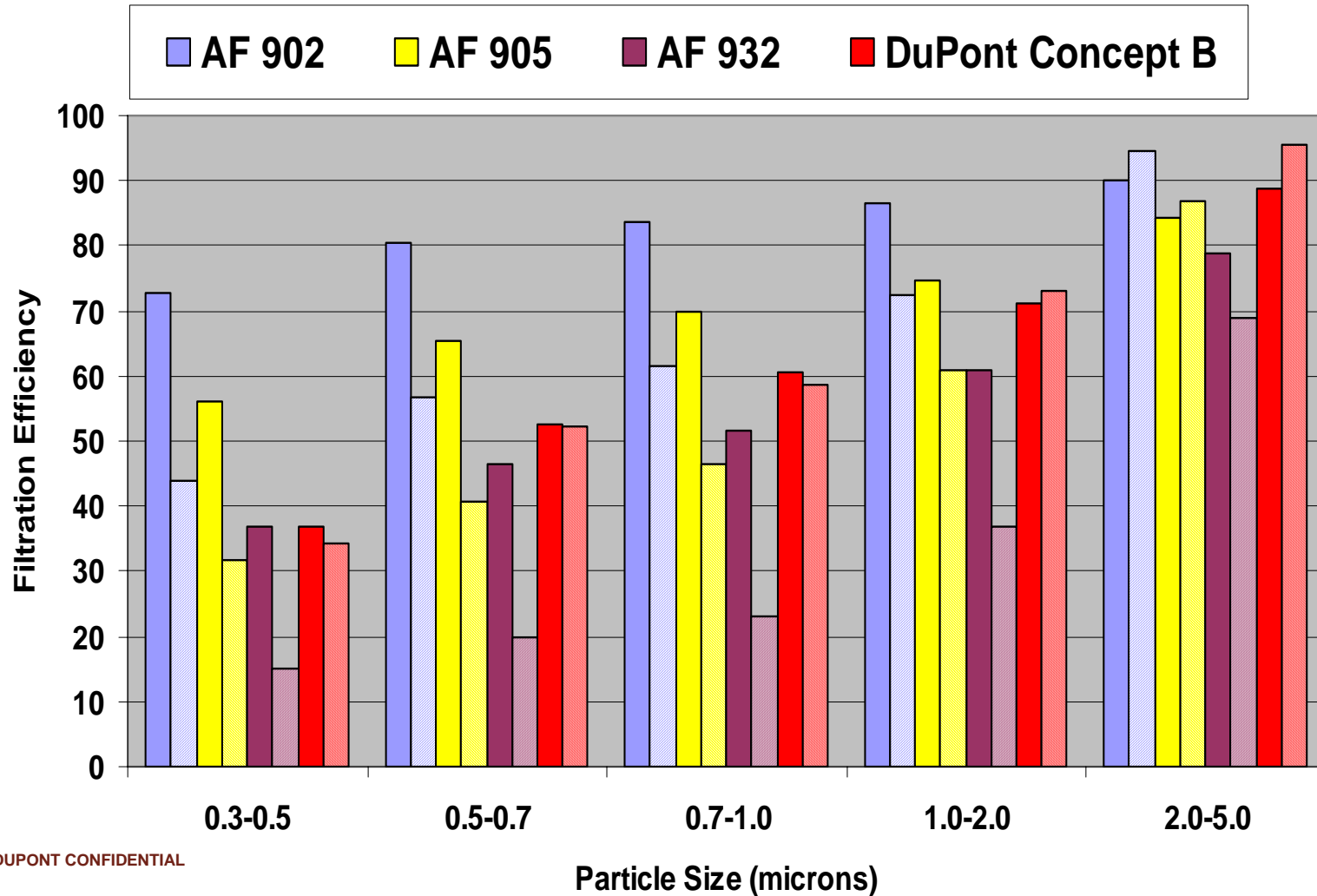
Samples provided by Hyundai Motors

Competitive Analysis

Flat sheet testing of samples provided by Hyundai Motors.

Samples tested at 30 cm/s using ambient air without temp. and humidity control.

Solid bars tested in April 2006, patterned bars tested in June, 2006.



Summary

- **DuPont Hybrid Membrane Technology offers superior efficiency**
- **DuPont HMT offers the most optimum flux/barrier performance on the market**
- **DuPont is committed to continuous product evolution and pipeline**
- **DuPont is committed to consumer education and providing healthier environments. DuPont automotive interior air filters will carry the American Lung Association seal with every product.**

Proposed Paths Forward

- **DuPont/Hyundai partnership for next generation of cabin air filters**
- **Hyundai evaluations of DuPont finished filters**
- **Project teams established within Hyundai and DuPont to provide the highest performing materials in Hyundai's line of automobiles**
- **Collaboration program with Mobis to optimize design and standards of filtration components**