International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI)

Balapur P.O., Hyderabad – 500005, Telangana, India

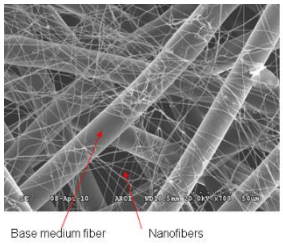
Nano fibre coatings on filter media for high performance air filters

Overview

Polymer nanofiber coatings on standard filtration medium have significantly improved the performance of automotive air filters. Nanofibers having diameter less than 500 nm with extremely high specific surface area, adequate porosity and small pores make them suitable candidates for high performance air filters because of high filtration efficiency and dust holding capacity with minimum pressure drop. Tiny particles in the order of less 0.5 µm can easily be trapped in electro spun nanofibers due to high surface to volume ratio.

Key Features

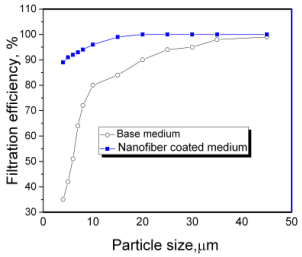
- High surface area
- High filtration efficiency
- High surface cohesion
- Simple and scalable manufacturing process
- Present productivity at ARCI: 500X1000 Sq mm/min



Nanofibers covers the micron size pores of base medium and traps the fine particles.

Potential Applications

1. Automotive air filters
2. Mining vehicles cabin air filters



Performance characteristic of nanofiber coatings.

Intellectual Property Development Indices (IPDI)

- Performance and stability are validated at laboratory scale
- Performance was tested at industry.

Status	1	2	3	4	5	6	7	8	9	10

Major Patents/Publications

1. A novel method for measurement of porosity in nanofiber mat using pycnometer in filtration", S.Sudhakara Sarma, T.N.Rao, Journal of engineered fibres and fabric, vol 8, issue 4,2013.
2. Fabrication of compound nanofibers for antibacterial applications in filtration, S. Sudhakara Sarma, IJETAE,vol 4, issue 5, 2014.

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