

# The Global Market for Nanofibers 2021-2031

<https://marketpublishers.com/r/G3AB3560D007EN.html>

Date: December 2021

Pages: 130

Price: US\$ 1,100.00 (Single User License)

ID: G3AB3560D007EN

## Abstracts

Nanofibers have been prepared from a range of materials, such as synthetic polymers, natural polymers, carbon-based nanomaterials, semiconducting nanomaterials, and composite nanomaterials. Nanofibers are steadily gaining popularity in drug delivery systems, medical implants, water and air filtration, cell-cultured meat and protective clothing. The BMW electric M-series automobile incorporates nanofiber air filtration. Demand has increased due growing needs for materials offering high functionality, such as absorbency and grip, and excellent comfort including soft texture and low skin irritation. This has been further boosted by the explosion in demand for medical grade face coverings and air and microfiltration media, high efficiency fuel filtration, advanced filtration, life sciences/pharmaceutical medias, acoustics and performance apparel over the past 18 months. These trends will continue over the next decade.

Nanofibers have wide-ranging morphologies, and are produced using a variety of materials such as:

Natural polymers.

Synthetic polymers.

Carbon nanomaterials.

Semiconducting materials

Composite materials.

Chitin

Report contents include:

Global revenues for nanofibers, historical and forecast to 2031, by market and by region.

Nanofiber products.

Production technologies and equipment analysis and supplier profiles.

Market drivers, trends and challenges, by end user markets.

Roadmap for nanofibers.

End user market assessment for nanofibers in textiles, medical and healthcare, filtration, and other markets.

In-depth profiles of 65 polymer nanofiber companies, include products commercial activities. Nanofiber companies profiled include Bioinicia SL, Donaldson, 4C Air Inc, Gelatex Technologies, Lime Co., Ltd., Matregenix, M-TEchX, Vivilta and many more.

In-depth profiles of 10 carbon nanofiber companies, include products commercial activities. Nanofiber companies profiled include Bergen Carbon Solutions, Carbonova, Grupo Antolin etc.

## Contents

### **1 EXECUTIVE SUMMARY**

- 1.1 Market landscape
- 1.2 Polymer, alumina and carbon nanofibers
- 1.3 Applications
- 1.4 Commercial electrospun nanofiber products
- 1.5 Market drivers
- 1.6 Market and technical challenges
- 1.7 Global nanofibers market revenues
  - 1.7.1 Global revenues for nanofibers, by market 2018-2031
  - 1.7.2 Global revenues for nanofibers, by regions 2018-2031

### **2 RESEARCH SCOPE AND METHODOLOGY**

- 2.1 Report scope
- 2.2 Research methodology

### **3 INTRODUCTION**

- 3.1 Types of nanofibers
  - 3.1.1 Classification of nanofibers
  - 3.1.2 Synthetic polymer nanofibers
  - 3.1.3 Natural polymers
    - 3.1.3.1 Collagen
    - 3.1.3.2 Cellulose
    - 3.1.3.3 Silk fibroins
    - 3.1.3.4 Keratin
    - 3.1.3.5 Gelatin
    - 3.1.3.6 Polysaccharides
  - 3.1.4 Carbon nanofibers
  - 3.1.5 Other types of nanofibers
    - 3.1.5.1 Alumina nanofibers
    - 3.1.5.2 Silicon nanofibers
- 3.2 Upscaling nanofibers
- 3.3 Synthesis of nanofibers
  - 3.3.1 Electrospinning
    - 3.3.1.1 Advantages

- 3.3.1.2 Drawbacks
- 3.3.1.3 Multi-nozzle/needle electrospinning
- 3.3.1.4 Needle/nozzle-less electrospinning
- 3.3.1.5 Co-electrospinning or co-axial electrospinning
- 3.3.1.6 Ultrasound-enhanced electrospinning
- 3.3.1.7 Electrospinning instrument manufacturers
- 3.3.2 Electro-hydrodynamic direct writing
- 3.3.3 Electropray Deposition
- 3.3.4 Centrifugal jet spinning
- 3.3.5 Centrifugal multi-spinning
- 3.3.6 Plasma-induced synthesis
- 3.3.7 CO<sub>2</sub> laser supersonic drawing
- 3.3.8 Solution blow spinning

#### **4 NANOFIBER TECHNOLOGY READINESS LEVEL (TRL)**

#### **5 MARKETS FOR POLYMER NANOFIBERS**

- 5.1 Markets and application summary
- 5.2 FILTER MEDIA
  - 5.2.1 Market drivers
  - 5.2.2 Applications
    - 5.2.2.1 Types of filtration
    - 5.2.2.2 Water filtration
    - 5.2.2.3 Air filtration
    - 5.2.2.4 Virus filtration
  - 5.2.3 Global market revenues
  - 5.2.4 Market challenges
- 5.3 TEXTILES
  - 5.3.1 Market drivers
  - 5.3.2 Applications
    - 5.3.2.1 Protective textiles
    - 5.3.2.2 Waterproof and breathable textiles
    - 5.3.2.3 Antibacterial fibers
    - 5.3.2.4 E-textiles
  - 5.3.3 Global market revenues
  - 5.3.4 Market challenges
- 5.4 MEDICAL & HEALTHCARE
  - 5.4.1 Market drivers

5.4.2 Applications

5.4.3 Products

5.4.4 Global market revenues

5.5 OTHER MARKETS

## **6 POLYMER NANOFIBER COMPANY PROFILES 66 (65 COMPANY PROFILES)**

## **7 CARBON NANOFIBERS MARKET**

7.1 Properties

7.2 Synthesis

7.2.1 Chemical vapor deposition

7.2.2 Electrospinning

7.2.3 Template-based

7.2.4 From biomass

7.3 Markets

7.3.1 Batteries

7.3.2 Supercapacitors

7.3.3 Fuel cells

7.3.4 CO<sub>2</sub> capture

7.4 Companies 116 (10 company profiles)

## **8 REFERENCES**

## Tables

### TABLES

Table 1: Market summary for nanofibers.

Table 2: Applications of nanofibers.

Table 3. Commercial electrospun nanofiber products

Table 4: Market drivers for nanofibers.

Table 5: Market and technical challenges for nanofibers.

Table 6: Global revenues for nanofibers, by market 2018-2031, millions USD.

Table 7: Global revenues for nanofibers by region 2018-2031 (million USD).

Table 8: Nanofibers types, properties and applications.

Table 9. Synthesis of nanofibers from various materials, their fabrication techniques, advantages and applications.

Table 10. Natural and synthetic polymers and blends that can be electrospun.

Table 11. Electrospinning instrument manufacturers.

Table 12. Technology Readiness Level (TRL) Examples.

Table 13. Markets and applications for polymer nanofibers.

Table 14. Market drivers for nanofibers in filter media.

Table 15: Types of filtration.

Table 16: Global revenues for nanofibers in the filter media market, 2018-2031 (million USD).

Table 17. Market drivers for use of nanofibers in textiles.

Table 18: Global revenues for nanofibers in the textiles market, 2018-2031 (millions USD).

Table 19: Market drivers for nanofibers in medical and healthcare.

Table 20: Nanofiber applications timeline in the medical and healthcare markets.

Table 21. Electrospun nanofiber medical products.

Table 22: Global revenues for nanofibers in the medical and healthcare market, 2018-2031 (million USD).

Table 23. Other markets for nanofibers.

Table 24. Gelatex nanofiber sheet.

Table 25. Comparison of synthesis methods for carbon nanofibers.

## Figures

### FIGURES

Figure 1: Global revenues for nanofibers, by market 2018-2031, million USD.

Figure 2: Global revenues for nanofibers by region 2018-2031 (million USD).

Figure 3. Electrospun polyacrylonitrile (PAN) nanofibers with different orientation: a) aligned and b) random.

Figure 4. Electrospinning technique.

Figure 5. Scanning electron microscope images of electrospun nanofibers collected on different geometries and styles.

Figure 6. Typical electrospinning component schematic.

Figure 7. A multi-nozzle electrospinning device.

Figure 8. Schematic of a needle-free electrospinning system.

Figure 9 Electrohydrodynamic writing of nanofibers.

Figure 10. Electropray Deposition Method.

Figure 11 Centrifugal jet spinning of nanofibers.

Figure 12. Schematic illustration of the centrifugal multispinning polymer nanofiber production process.

Figure 13 Solution blow spinning of nanofibers.

Figure 14. Conventional Filter Media.

Figure 15. Nanofiber coated filter media.

Figure 16. Ultra-web<sup>®</sup> filter media by the Donaldson company.

Figure 17. Schematic of nanofiber membrane for seawater distillation.

Figure 18. Virus deactivating nanofiber membrane schematic.

Figure 19: Global revenues for nanofibers in the filter media market, 2018-2031 (million USD).

Figure 20: nanofiber conductive shirt.

Figure 21: Global revenues for nanofibers in the textiles market, 2018-2031 (millions USD).

Figure 22: Global revenues for nanofibers in the medical and healthcare market, 2018-2031 (million USD).

Figure 23. Comparison with conventional water treatment.

Figure 24. Nanoceram pleated filter cartridges.

Figure 25. Ultra-web<sup>®</sup> filter media by the Donaldson company.

Figure 26. Nanospider.

Figure 27. activLayr Bioactive Skincare Collagen product.

Figure 28. Spincare system.

Figure 29. ReSpimask<sup>®</sup> mask.

Figure 30. Schematic of nanofiber filter.

Figure 31. Sample sock made with Nanofront® recycled-polyester nanofiber.

Figure 32. Hitoe conductive nanofiber garment.



## I would like to order

Product name: The Global Market for Nanofibers 2021-2031

Product link: <https://marketpublishers.com/r/G3AB3560D007EN.html>

Price: US\$ 1,100.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

[info@marketpublishers.com](mailto:info@marketpublishers.com)

## Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/G3AB3560D007EN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:  
Last name:  
Email:  
Company:  
Address:  
City:  
Zip code:  
Country:  
Tel:  
Fax:  
Your message:

**\*\*All fields are required**

Customer signature \_\_\_\_\_

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970