

Conductive Textile Market- Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028F Segmented By Product (Woven, Knitted, Others), By Fabric (Cotton, Nylon, Polyester, Wool), By Application (Military & Defence, Healthcare, Sport & Fitness, Others), By Region and Competition

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Abstracts

Global Conductive Textile market is anticipated to grow significantly through 2028 due to the increasing demand from the sport & fitness sector. In 2019, around 19.3% of the population in the United States was engaged in Sports activity.

Global Conductive Textile market is expected to expand during the projected period due to increasing demand from the sport & fitness sector as it measures heartbeat as well as absorbs sweat. Conductive textile materials are widely used in smart fabric applications, especially those that monitor body functions, and are used in smart textile applications such as sensors, heating textiles, electrostatic discharge clothing, and communication. In addition, the increasing use of conductive textiles in the automotive industry, military, and defense for various purposes increases its demand. Furthermore, the development of conductive textiles using graphene inks and the rise in the use of conductive textiles in wearable medical and fitness equipment will both offer significant growth possibilities for the conductive textiles market in the coming years.

Additionally, nanotechnology involves the manipulation of materials on a molecular or atomic scale. Advancements in nanotechnology have enabled the development of conductive materials that are more efficient and durable than traditional materials. Nanotechnology has also made it possible to create conductive materials that are flexible and can be integrated into clothing and other textiles. Moreover, growing

investment in the research & development for increased use of conductive textiles in various smart home applications for automation systems that can be controlled using gestures or voice commands. Several companies have been developing conductive textiles that are infused with antimicrobial agents, such as silver, copper, and zinc. These materials can help prevent the spread of bacteria and viruses, making them ideal for use in healthcare settings, as well as in everyday clothing.

Increasing Demand from the Sports & Fitness Sector

Many sportsmen prefer smartwatches and fitness monitors as their companions; however, clothing is also evolving in this field. It introduced shirts that could both measure pulse and absorb perspiration. As a result, the sports and fitness sector has been able to develop new materials with the same or more qualities. Fabrics can incorporate sensors or electrodes that can monitor a variety of characteristics, such as movement, body temperature, or pulse.

For instance, Al Silk has developed the innovative LEAD SKIN conductive fibers using dyeing technology in which fiber itself becomes electrically conductive by a conductive polymer coating made of Clevios, developed by Heraeus Epurio, which is used to measure data such as heartbeat or movement parameters and stimulate muscles in sportswear.

Jackets can offer heat, depending on the situation and the wearer's health. The sports industry may see the use of smart fabrics. Wearing fitness equipment or smart watches can restrict movement and can become superfluous, but wearing a t-shirt might be all that's needed to analyze and collect necessary & crucial fitness and health data.

For Instant, according to Codete, in 2021, the revenue from the top 10 fitness and healthcare apps increased by 61% globally.

Additionally, conductive textiles are also increasingly being used in the healthcare sector as they are used in medical devices such as electrocardiogram (ECG) electrodes, electromyography (EMG) electrodes, and neurostimulation electrodes as well as used in smart fabrics that can monitor patients' vital signs, such as heart rate and blood pressure, in real-time. The increasing use of conductive textiles in healthcare is due to the need for more advanced technologies to improve patient outcomes and reduce healthcare costs.

For instance, Shieldex produces Silitex conductive textiles with conductive silicone,

which is ideal for dry electrodes in the electronic muscle and nerve stimulation (EMS) and measuring vital parameters in medical applications.

Growing Demand from the Military & Defence Sector

Special conductive fabrics are produced for particular use in industries like the military, marine, and defense, among others. For its varying demands, the defense sector relies heavily on these smart textiles. The textiles are made specifically to shield the warriors from harsh weather, allow quick bodily movements, and save you from harmful nuclear and chemical reactions. Additionally, it has assisted in improving combatants' performance, allowing them to survive the conflict in addition to being employed in army uniforms and other equipment to provide soldiers with real-time situational awareness. They are also used in communication systems, electronic warfare systems, and other military applications. Along with this, conductive fibers are also used to create ropes, parachutes, tents, and safety harnesses. Moreover, conductive fibers are employed to charge various devices, eliminating the need for additional batteries and cords on the uniform.

For instance, according to CNBC, China committed to spending USD 177.61 billion on the military in 2019, boosting the use of conductive fibers in smart textiles as a result of technical development.

Additionally, conductive textiles are used in seat heaters, airbags, and other safety devices. They are also used in interior lighting and entertainment systems.

For instance, In May 2022, Vibia introduced a lighting system comprising conductive textile ribbons, which works on plus-minus programmable lighting systems.

Moreover, conductive textiles are used in touch screens, flexible displays, and other electronic devices. They are also used in smart clothing that can track fitness data, monitor vital signs, and provide other health-related information.

Therefore, increasing demand for conductive textiles from the defense, automotive, and electronics sectors led to the growth of Global Conductive Textile market during the forecast period.

Cotton will be a Key Fabric in the Forecast Period.

Cotton conductive textiles are created by dip-and-dry coating knitted cotton fabric with

single-wall carbon nanotubes. It provides quick reactions and excellent stability in sensors. Furthermore, real-time human motions like walking, standing, jogging, sitting, bending an elbow or finger, etc., are tracked using cotton conductive fabric-based sensors. Additionally, the cotton conductive fabric displays a powerful electric heating effect. All these properties help to increase the demand for conductive textiles in the projected period.

For instance, according to the National Library of Medicine, researchers evaluated the cotton conductive fabric's durability after washing it during an experiment in 2018. The results showed that while the electrical resistance did slightly increase after the first few washes, the number of washes had little effect on the fabric's conductivity.

Additionally, the Polyester fabric is popular because it is sturdy, resistant to most chemicals, and shrinks less than cotton. As a result, it is used as a raw material to create conductive wearables like jackets and sportswear.

For instance, Soliani Emc s.r.l. Produces EMC/EMI Nickel Polyester fabrics which are stable against corrosion and have a good shielding value.

However, the materials used in conductive textiles, such as silver, copper, and carbon, are expensive, and their production process is complex and time-consuming. Along with it, the high manufacturing cost of conductive textiles on account of extensive investment in research and development and infusing electronic devices into the garments is cost-intensive and subsequently are factor driving up the overall price, which is ultimately hampering the growth of the market. Moreover, there are no standard testing methods for conductive textiles, which can make it difficult for manufacturers to ensure the quality of their products. This can also lead to confusion for consumers who may not understand the differences between various conductive textiles. In addition, issues related to the durability and reliability of conductive textiles with respect to the harsh condition, such as repeated washing or exposure to sweat and oils, which can cause degradation over time as well as limited availability of conductive textile components such as connectors and sensors, lead to delays in the production process and increase costs for manufacturers which restrain the growth of the market.

Recent Developments

In February 2022, Trident partnered with Noble to increase the production of plant-based antimicrobial fabric made from ionic + botanical technology.

Noble Biomaterials announced that its Circuitex fabric and foam technologies are proven to reflect high-frequency energy waves in November 2021.

To lower the carbon footprint in the Petrovice (Czech Republic) building sector for long-lasting and sustainable solutions, Bekaert created Dramix steel fibers in October 2021.

In April 2021, Myant Inc. announced the launch of a unique partnership contract for the usage and development of next-generation conductive yarns and connectors for textile computing applications.

Market Segmentation

Global Conductive Textile Market is segmented based on product, fabric, application, and region. Based on the product, the market is fabricated into woven, knitted, and others. Based on fabric, the market is segmented into cotton, nylon, polyester, and wool. Based on application, the market is categorized into military & defense, healthcare, sport & fitness, and others. Based on region, the market is divided into North America, Europe, Asia Pacific, South America, Middle East & Africa, and By Company.

Company Profiles

Statex Produktions- und Vertriebs GmbH, Toray Industries, Inc., Holland Shielding Systems BV, HeiQ Materials AG, Qindao Hengtong X-Silver Speciality Textiles Co. Ltd., Seiren Co., Ltd., Herculite Inc., AiQ Smart Clothing, Marktek, Inc., Swift Textile Metalizing LLC are some of the key players of Global Conductive Textile Market.

Report Scope:

In this report, Global Conductive Textile market has been segmented into the following categories, in addition to the industry trends, which have also been detailed below:

Conductive Textile Market, By Product:

Woven

Knitted

Others

Conductive Textile Market, By Fabric:

Cotton

Nylon

Polyester

Wool

Conductive Textile Market, By Application:

Military & Defence

Healthcare

Sport & Fitness

Others

Conductive Textile Market, By Region:

North America

United States

Mexico

Canada

Europe

France

Germany

United Kingdom

Spain

Italy

Switzerland

Asia-Pacific

China

India

South Korea

Japan

Australia

South America

Brazil

Argentina

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive landscape

Company Profiles: Detailed analysis of the major companies in the global Conductive Textile market.

Available Customizations:

With the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

Contents

1. PRODUCT OVERVIEW

- 1.1. Market Definition
- 1.2. Scope of the Market
 - 1.2.1. Markets Covered
 - 1.2.2. Years Considered for Study
 - 1.2.3. Key Market Segmentations

2. RESEARCH METHODOLOGY

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Key Industry Partners
- 2.4. Major Association and Secondary Sources
- 2.5. Forecasting Methodology
- 2.6. Data Triangulation & Validation
- 2.7. Assumptions and Limitations

3. EXECUTIVE SUMMARY

- 3.1. Overview of the Market
- 3.2. Overview of Key Market Segmentations
- 3.3. Overview of Key Market Players
- 3.4. Overview of Key Regions/Countries
- 3.5. Overview of Market Drivers, Challenges, Trends

4. VOICE OF CUSTOMER

5. GLOBAL CONDUCTIVE TEXTILE MARKET OUTLOOK

- 5.1. Market Size & Forecast
 - 5.1.1. By Value
- 5.2. Market Share & Forecast
 - 5.2.1. By Product (Woven, Knitted, Others)
 - 5.2.2. By Fabric (Cotton, Nylon, Polyester, Wool)
 - 5.2.3. By Application (Military & Defence, Healthcare, Sport & Fitness, Others)
 - 5.2.4. By Region (North America, Europe, Asia Pacific, South America, Middle East &

Africa)

5.2.5. By Company (2022)

5.3. Market Map

5.3.1. By Product

5.3.2. By Fabric

5.3.3. By Application

5.3.4. By Region

6. NORTH AMERICA CONDUCTIVE TEXTILE MARKET OUTLOOK

6.1. Market Size & Forecast

6.1.1. By Value

6.2. Market Share & Forecast

6.2.1. By Product

6.2.2. By Fabric

6.2.3. By Application

6.2.4. By Country

6.3. Pricing Analysis

6.4. North America: Country Analysis

6.4.1. United States Conductive Textile Market Outlook

6.4.1.1. Market Size & Forecast

6.4.1.1.1. By Value

6.4.1.2. Market Share & Forecast

6.4.1.2.1. By Product

6.4.1.2.2. By Fabric

6.4.1.2.3. By Application

6.4.2. Mexico Conductive Textile Market Outlook

6.4.2.1. Market Size & Forecast

6.4.2.1.1. By Value

6.4.2.2. Market Share & Forecast

6.4.2.2.1. By Product

6.4.2.2.2. By Fabric

6.4.2.2.3. By Application

6.4.3. Canada Conductive Textile Market Outlook

6.4.3.1. Market Size & Forecast

6.4.3.1.1. By Value

6.4.3.2. Market Share & Forecast

6.4.3.2.1. By Product

6.4.3.2.2. By Fabric

6.4.3.2.3. By Application

7. EUROPE CONDUCTIVE TEXTILE MARKET OUTLOOK

7.1. Market Size & Forecast

7.1.1. By Value

7.2. Market Share & Forecast

7.2.1. By Product

7.2.2. By Fabric

7.2.3. By Application

7.2.4. By Country

7.3. Pricing Analysis

7.4. Europe: Country Analysis

7.4.1. France Conductive Textile Market Outlook

7.4.1.1. Market Size & Forecast

7.4.1.1.1. By Value

7.4.1.2. Market Share & Forecast

7.4.1.2.1. By Product

7.4.1.2.2. By Fabric

7.4.1.2.3. By Application

7.4.2. Germany Conductive Textile Market Outlook

7.4.2.1. Market Size & Forecast

7.4.2.1.1. By Value

7.4.2.2. Market Share & Forecast

7.4.2.2.1. By Product

7.4.2.2.2. By Fabric

7.4.2.2.3. By Application

7.4.3. United Kingdom Conductive Textile Market Outlook

7.4.3.1. Market Size & Forecast

7.4.3.1.1. By Value

7.4.3.2. Market Share & Forecast

7.4.3.2.1. By Product

7.4.3.2.2. By Fabric

7.4.3.2.3. By Application

7.4.4. Spain Conductive Textile Market Outlook

7.4.4.1. Market Size & Forecast

7.4.4.1.1. By Value

7.4.4.2. Market Share & Forecast

7.4.4.2.1. By Product

- 7.4.4.2.2. By Fabric
- 7.4.4.2.3. By Application
- 7.4.5. Italy Conductive Textile Market Outlook
 - 7.4.5.1. Market Size & Forecast
 - 7.4.5.1.1. By Value
 - 7.4.5.2. Market Share & Forecast
 - 7.4.5.2.1. By Product
 - 7.4.5.2.2. By Fabric
 - 7.4.5.2.3. By Application
- 7.4.6. Switzerland Conductive Textile Market Outlook
 - 7.4.6.1. Market Size & Forecast
 - 7.4.6.1.1. By Value
 - 7.4.6.2. Market Share & Forecast
 - 7.4.6.2.1. By Product
 - 7.4.6.2.2. By Fabric
 - 7.4.6.2.3. By Application

8. ASIA-PACIFIC CONDUCTIVE TEXTILE MARKET OUTLOOK

- 8.1. Market Size & Forecast
 - 8.1.1. By Value
- 8.2. Market Share & Forecast
 - 8.2.1. By Product
 - 8.2.2. By Fabric
 - 8.2.3. By Application
 - 8.2.4. By Country
- 8.3. Pricing Analysis
- 8.4. Asia-Pacific: Country Analysis
 - 8.4.1. China Conductive Textile Market Outlook
 - 8.4.1.1. Market Size & Forecast
 - 8.4.1.1.1. By Value
 - 8.4.1.2. Market Share & Forecast
 - 8.4.1.2.1. By Product
 - 8.4.1.2.2. By Fabric
 - 8.4.1.2.3. By Application
 - 8.4.2. India Conductive Textile Market Outlook
 - 8.4.2.1. Market Size & Forecast
 - 8.4.2.1.1. By Value
 - 8.4.2.2. Market Share & Forecast

- 8.4.2.2.1. By Product
- 8.4.2.2.2. By Fabric
- 8.4.2.2.3. By Application
- 8.4.3. South Korea Conductive Textile Market Outlook
 - 8.4.3.1. Market Size & Forecast
 - 8.4.3.1.1. By Value
 - 8.4.3.2. Market Share & Forecast
 - 8.4.3.2.1. By Product
 - 8.4.3.2.2. By Fabric
 - 8.4.3.2.3. By Application
- 8.4.4. Japan Conductive Textile Market Outlook
 - 8.4.4.1. Market Size & Forecast
 - 8.4.4.1.1. By Value
 - 8.4.4.2. Market Share & Forecast
 - 8.4.4.2.1. By Product
 - 8.4.4.2.2. By Fabric
 - 8.4.4.2.3. By Application
- 8.4.5. Australia Conductive Textile Market Outlook
 - 8.4.5.1. Market Size & Forecast
 - 8.4.5.1.1. By Value
 - 8.4.5.2. Market Share & Forecast
 - 8.4.5.2.1. By Product
 - 8.4.5.2.2. By Fabric
 - 8.4.5.2.3. By Application

9. SOUTH AMERICA CONDUCTIVE TEXTILE MARKET OUTLOOK

- 9.1. Market Size & Forecast
 - 9.1.1. By Value
- 9.2. Market Share & Forecast
 - 9.2.1. By Product
 - 9.2.2. By Fabric
 - 9.2.3. By Application
 - 9.2.4. By Country
- 9.3. Pricing Analysis
- 9.4. South America: Country Analysis
 - 9.4.1. Brazil Conductive Textile Market Outlook
 - 9.4.1.1. Market Size & Forecast
 - 9.4.1.1.1. By Value

- 9.4.1.2. Market Share & Forecast
 - 9.4.1.2.1. By Product
 - 9.4.1.2.2. By Fabric
 - 9.4.1.2.3. By Application
- 9.4.2. Argentina Conductive Textile Market Outlook
 - 9.4.2.1. Market Size & Forecast
 - 9.4.2.1.1. By Value
 - 9.4.2.2. Market Share & Forecast
 - 9.4.2.2.1. By Product
 - 9.4.2.2.2. By Fabric
 - 9.4.2.2.3. By Application

10. MIDDLE EAST AND AFRICA CONDUCTIVE TEXTILE MARKET OUTLOOK

- 10.1. Market Size & Forecast
 - 10.1.1. By Value
- 10.2. Market Share & Forecast
 - 10.2.1. By Product
 - 10.2.2. By Fabric
 - 10.2.3. By Application
 - 10.2.4. By Country
- 10.3. Pricing Analysis
- 10.4. MEA: Country Analysis
 - 10.4.1. South Africa Conductive Textile Market Outlook
 - 10.4.1.1. Market Size & Forecast
 - 10.4.1.1.1. By Value
 - 10.4.1.2. Market Share & Forecast
 - 10.4.1.2.1. By Product
 - 10.4.1.2.2. By Fabric
 - 10.4.1.2.3. By Application
 - 10.4.2. Saudi Arabia Conductive Textile Market Outlook
 - 10.4.2.1. Market Size & Forecast
 - 10.4.2.1.1. By Value
 - 10.4.2.2. Market Share & Forecast
 - 10.4.2.2.1. By Product
 - 10.4.2.2.2. By Fabric
 - 10.4.2.2.3. By Application
 - 10.4.3. UAE Conductive Textile Market Outlook
 - 10.4.3.1. Market Size & Forecast

- 10.4.3.1.1. By Value
- 10.4.3.2. Market Share & Forecast
 - 10.4.3.2.1. By Product
 - 10.4.3.2.2. By Fabric
 - 10.4.3.2.3. By Application

11. MARKET DYNAMICS

- 11.1. Drivers
 - 11.1.1. Rising Demand from Military & Defence Sector
 - 11.1.2. Growing Awareness regarding Conductive Textiles
 - 11.1.3. Increasing Demand from Sport & Fitness Sector
- 11.2. Challenges
 - 11.2.1. High Production Cost
 - 11.2.2. Less Stability and Maintenance Issue

12. MARKET TRENDS & DEVELOPMENTS

- 12.1. Product Launches
- 12.2. Mergers & Acquisitions
- 12.3. Technological Advancements

13. GLOBAL CONDUCTIVE TEXTILE MARKET: SWOT ANALYSIS

14. PORTER'S FIVE FORCES ANALYSIS

- 14.1. Competition in the Industry
- 14.2. Potential of New Entrants
- 14.3. Power of Suppliers
- 14.4. Power of Customers
- 14.5. Threat of Substitute Products

15. COMPETITIVE LANDSCAPE

- 15.1. Business Overview
- 15.2. Product Offerings
- 15.3. Recent Developments
- 15.4. Financials (In Case of Listed Companies)
- 15.5. Key Personnel

15.6. SWOT Analysis

15.6.1. Statex Produktions- und Vertriebs GmbH

15.6.2. Toray Industries, Inc.

15.6.3. Holland Shielding Systems BV

15.6.4. HeiQ Materials AG

15.6.5. Qindao Hengtong X-Silver Speciality Textiles Co. Ltd.

15.6.6. Seiren Co., Ltd.

15.6.7. Herculite Inc.

15.6.8. AiQ Smart Clothing

15.6.9. Marktek, Inc.

15.6.10. Swift Textile Metalizing LLC

16. STRATEGIC RECOMMENDATIONS

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