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SPECIALTY SYNTHETIC FIBERS & GLASS FIBER MARKET

BY TYPE (PARA & META ARAMIDS, UHMW POLYETHYLENE, CARBON FIBER, POA, GLASS FIBER, AND OTHERS), APPLICATION (AEROSPACE & DEFENSE, AUTOMOTIVE, WIND ENERGY, SAFETY APPLICATIONS, AND FRICTION MATERIALS), AND REGION

TRENDS & FORECAST TO 2020

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TABLE OF CONTENTS

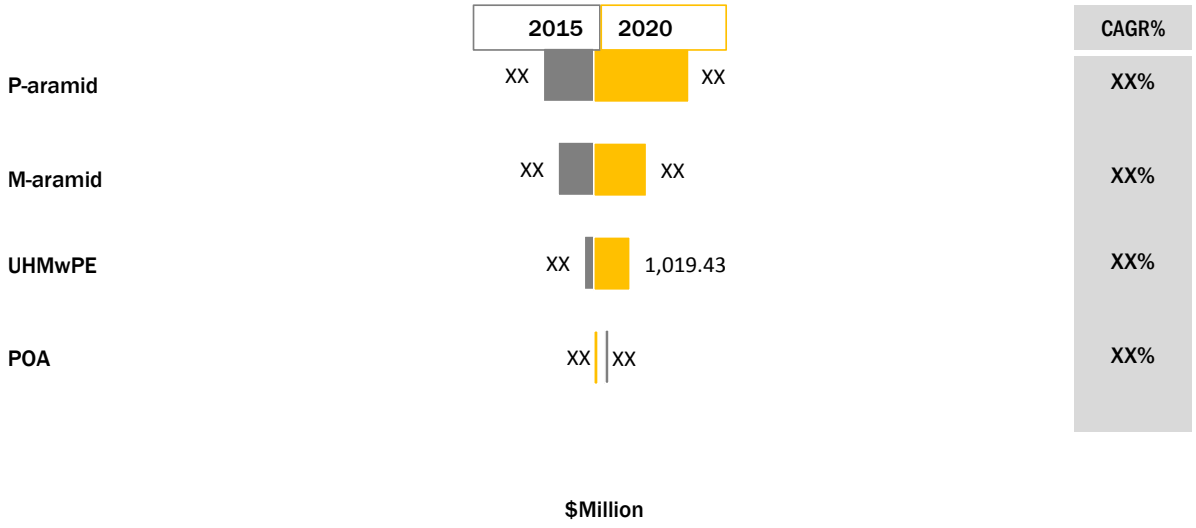
LIST OF FIGURES

1 EXECUTIVE SUMMARY

Specialty synthetic fibers include aramids, ultra high molecular weight polyethylene (UHMwPE), partially oxidized polyacrylonitrile (POA), and other synthetic, carbon, and glass fibers. Aramid fibers, including both para aramid and meta aramid, share properties such as high strength, good resistance to abrasion, good resistance to organic solvents, non-conductivity, no melting point, low flammability, and good fabric integrity at elevated temperatures. Due to this, aramid fibers are required to be combined with moisture-resistant materials like epoxy systems.

Another type of synthetic fiber includes UHMwPE, a type of polyolefin. This kind of synthetic fiber possesses properties such as high rigidity and strength, good dimensional stability, low water absorption, and exceptional resistance to weathering out. POA is a specialty organic fiber, which is not only a starting material for commercial carbon fibers but is also used in its own high-performance applications.

FIGURE 1 UHMWPE MARKET TO REGISTER THE HIGHEST CAGR ACROSS OTHER SPECIALTY SYNTHETIC FIBERS, 2015–2020 ($MILLION)



Source: Secondary Sources, The Japan Carbon Fiber Association (JCFA), The European Glass Fiber Producers Association (APFE), Japan Chemical Fibers Association, Fiberglass World, Composites World, Bloomberg Businessweek, Factiva, Expert Interviews, and MarketsandMarkets Analysis

Carbon fibers are high-strength and extremely lightweight materials. They are very thin strands of carbon containing at least 90% of carbon obtained by controlled pyrolysis of appropriate fibers. Carbon fibers have low specific gravity; exquisite mechanical properties, such as high specific tensile strength and high specific elastic modulus; and attractive performances such as electric conductivity, heat resistance, low thermal expansion coefficient, and chemical stability. These features have been proving as a stimulus to carbon fiber users for developing numerous kinds of applications. In contrast to carbon fibers, glass fibers can undergo more elongation before it breaks. Glass fiber is a fabric that offers excellent combination of properties from high strength to fire resistance, along with other properties such as moisture resistance, dimensional stability, chemical resistance, and other electrical properties.

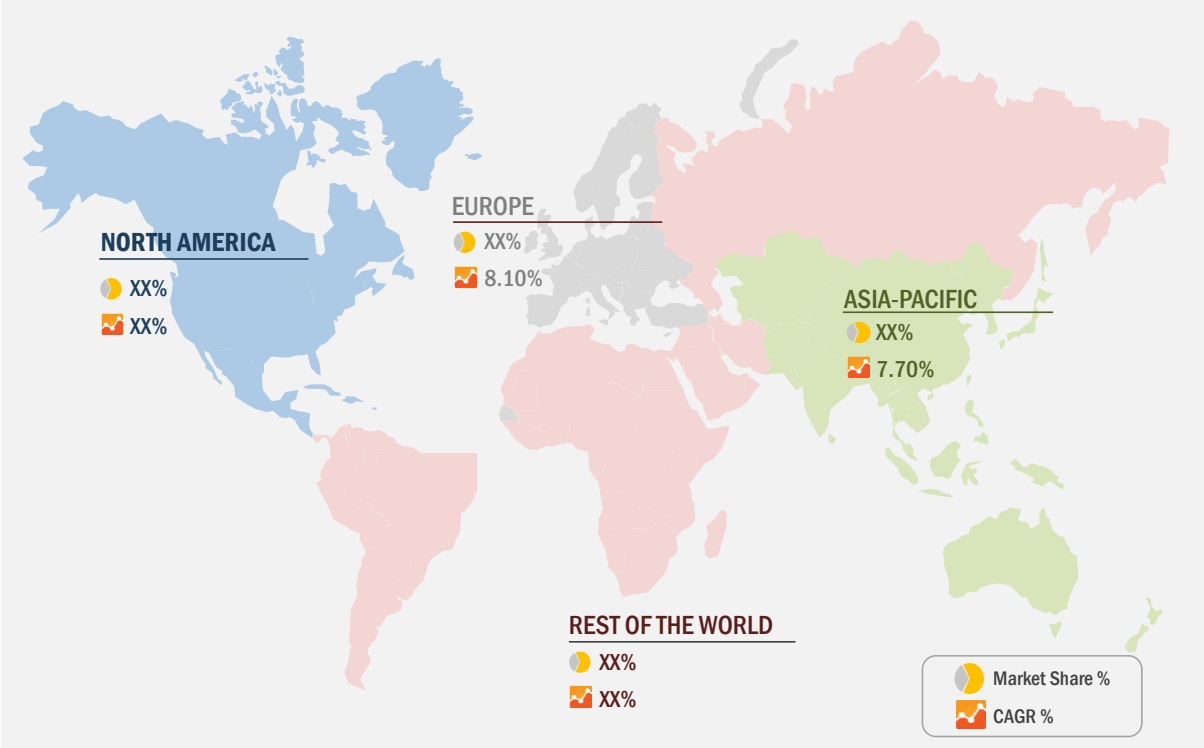
Specialty synthetic & glass fibers have various applications such as safety applications, friction materials, commercial marine, aerospace & defense, automotive, medical, construction, electronics, wind energy, and sporting goods. Aramid fibers are widely used in military and aerospace applications, for ballistic-rated body armor fabric, ballistic composites, and also as asbestos substitute. UHMwPE have applications in

various industries such as ballistic protection, medical, sporting goods, and other industrial & construction applications. Glass fibers are widely used in transportation and construction industries due to their lightweight and high strength properties.

The specialty synthetic fibers & glass fibers market size is projected to register a CAGR of 7.95%, in terms of value, and XX%, in terms of volume, between 2015 and 2020. The market of carbon fibers is projected to witness the highest CAGR of XX% between 2015 and 2020, in terms of value, followed by UHMwPE at a CAGR of XX%.

The synthetic & glass fibers industry is expected to expand significantly in the Asia-Pacific region, especially in China and India, in the next decade. The demand will mainly be driven by growth of the end-use industries such as aerospace & defense, automotive, medical, wind energy, and electronics. China is projected to register the highest CAGR of XX%, in terms of value, between 2015 and 2020. The increased demand for aramids in safety applications and optical fibers is expected to drive the synthetic fibers market in China by 2019. Moreover, the emerging demand for lightweight vehicles and rising concerns over greenhouse gases are projected to result in high demand for carbon fibers in Asia-Pacific between 2015 and 2020.

FIGURE 2 ASIA-PACIFIC TO REGISTER A SIGNIFICANT GROWTH IN THE GLASS FIBER MARKET (2015–2020)



Source: Secondary Sources, The Japan Carbon Fiber Association (JCFA), The European Glass Fiber Producers Association (APFE), Japan Chemical Fibers Association, Fiberglass World, Composites World, Bloomberg Businessweek, Factiva, Expert Interviews, and MarketsandMarkets Analysis

Europe is currently the largest manufacturer of aramids globally and accounts for the largest share in the synthetic fibers market, followed by North America. Europe remains the second-largest producer of man-made fibers globally.

North America accounted for approximately XX% share of the glass fiber market, in terms of value. The U.S. is the key manufacturer of glass fibers in this region. It accounted for 85.55% share of the North American glass fiber market in 2014, in terms of value.

The global specialty synthetic fibers & glass fibers market is dominated by Owens Corning (U.S.), Royal DSM (Netherlands), 3B Fiberglass (Belgium), E. I. Du Pont De Nemours and Company (U.S.), during the review period. These companies accounted for a total 51% of developments in the market. Other players include Mitsubishi Rayon Co., Ltd. (Japan), Zoltek Companies Inc. (U.S.), and Honeywell International (U.S.), which together accounted for XX% of the total development in the market.

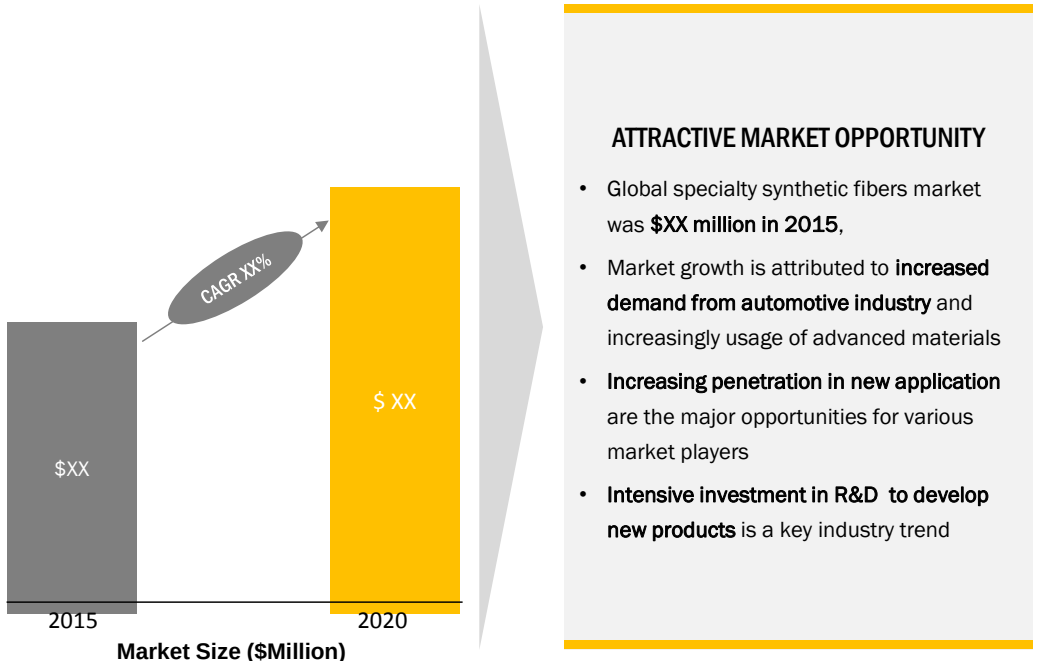
FIGURE 3 GROWTH STRATEGIES ADOPTED BY LEADING COMPANIES (2010–2015)

COMPANY NAME	ORGANIC GROWTH STRATEGIES		INORGANIC GROWTH STRATEGIES	
	New Product Launches/Developments	Expansions	Mergers & Acquisitions	Partnerships/Agreements/ Collaborations
Owens Corning	• PulStrand™4100 roving • OC Paneluxe • HydroStrand 258 glass-fiber chopped strands	Owens Corning built a new advanced technology facility in Gastonia	Owens Corning built a new advanced technology facility in Gastonia	Signed a deal with Japan based Tanaka Kikinzoku Kogyo K.K
Royal DSM	• Dyneema Purity(R) • Dyneema Max Technology DM20	Opened US Dyneema Purity fiber plant	DSM Dyneema bought majority shares (91.75%) of China-based Shandong	DSM started partnership with Sayan Orthopaedics Ltd
Teijin Industries	• Twaron Unidirectional Laminate UD22 • Twaron T765	• Teijin Limited inaugurated new Teijin Corporation (Thailand) • in order to strengthen its business in Russia.		Signed new distribution agreements with three member companies of the KODA Distribution Group (KDG), U.S
3B Fiberglass	• DS 1120-13P • DS2200-10P, 10µm glass fiber • SE2020			Distribution partnership deal with Germany-based Euroresins
Honeywell International Inc.	• Spectra Shield II SA 4144		Honeywell concluded the acquisition of Sperian Protection	

Source: Secondary Sources, The Japan Carbon Fiber Association (JCFA), The European Glass Fiber Producers Association (APFE), Japan Chemical Fibers Association, Fiberglass World, Composites World, Bloomberg Businessweek, Factiva, Expert Interviews, and MarketsandMarkets Analysis

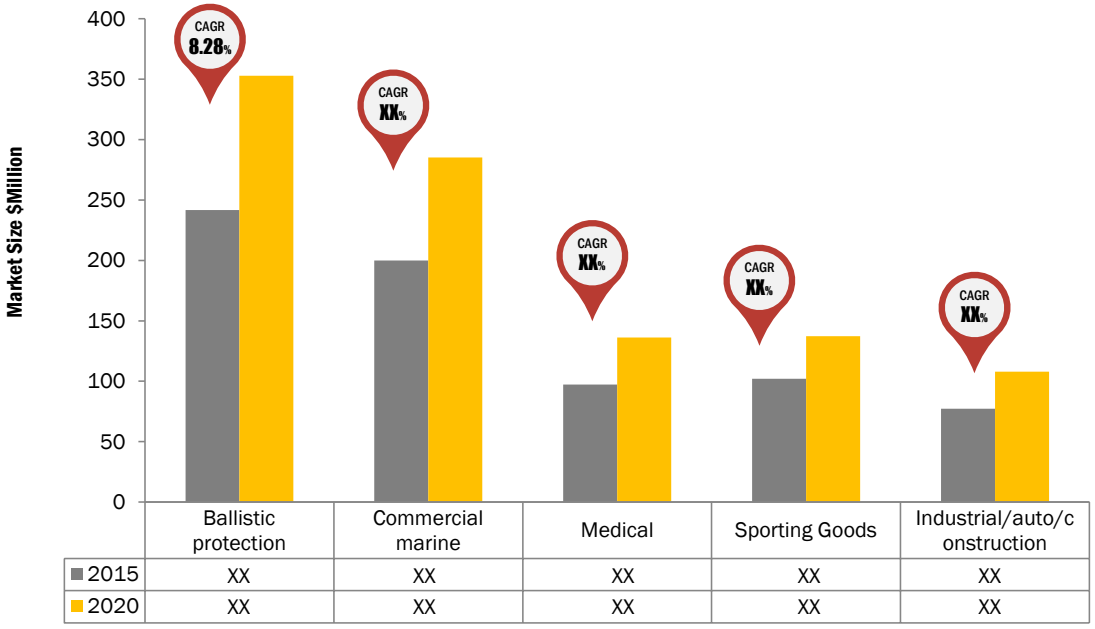
2 PREMIUM INSIGHTS

FIGURE 4 SPECIALTY SYNTHETIC FIBERS & GLASS FIBER MARKET SIZE ($MILLION)



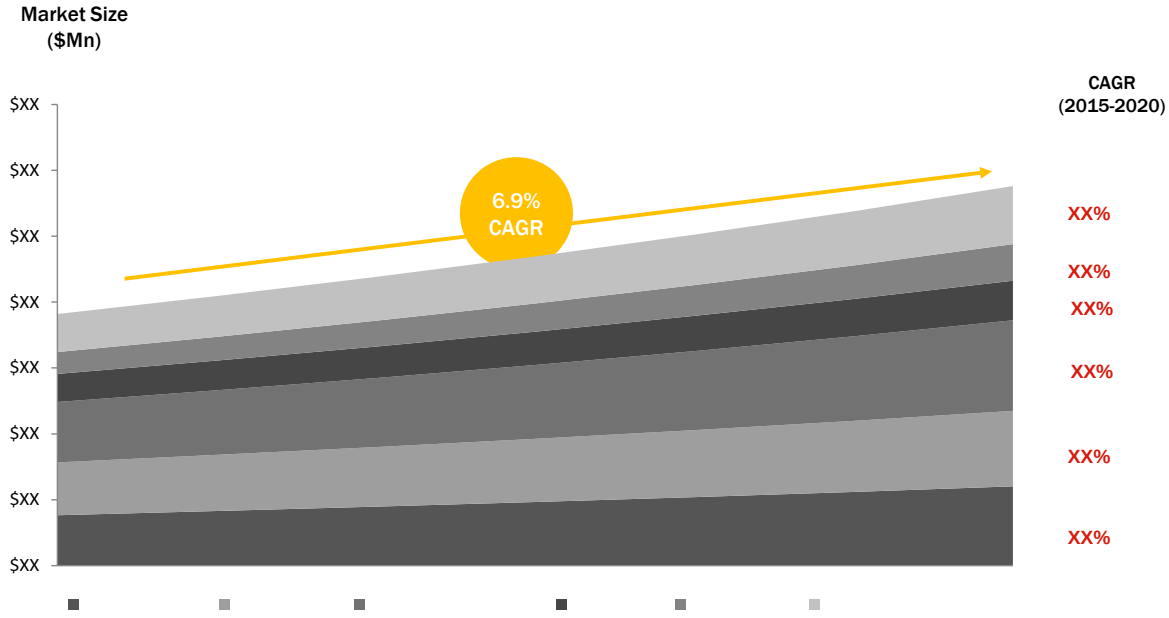
Source: Secondary Sources, The Japan Carbon Fiber Association (JCFA), The European Glass Fiber Producers Association , Japan Chemical Fibers Association, Fiberglass World, Composites World, Bloomberg Businessweek, Factiva, Expert Interviews, and MarketsandMarkets Analysis

FIGURE 5 BALLISTIC PROTECTION APPLICATION TO REGISTER THE HIGHEST GROWTH, IN TERMS OF VALUE, 2015–2020



Source: Secondary Sources, The Japan Carbon Fiber Association (JCFA), The European Glass Fiber Producers Association , Japan Chemical Fibers Association, Fiberglass World, Composites World, Bloomberg Businessweek, Factiva, Expert Interviews, and MarketsandMarkets Analysis

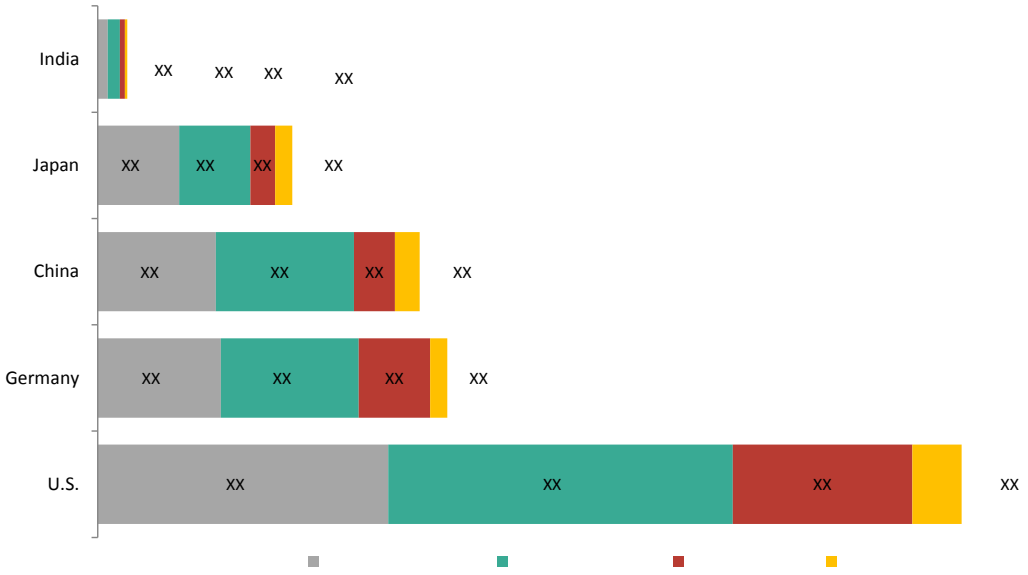
FIGURE 6 GLASS FIBER IS PROJECTED TO REGISTER HIGH CAGR IN WIND ENERGY APPLICATION, IN TERMS OF VALUE, 2015–2020



Note: Others include industrial applications

Source: Secondary Sources, The Japan Carbon Fiber Association (JCFA), The European Glass Fiber Producers Association , Japan Chemical Fibers Association, Fiberglass World, Composites World, Bloomberg Businessweek, Factiva, Expert Interviews, and MarketsandMarkets Analysis

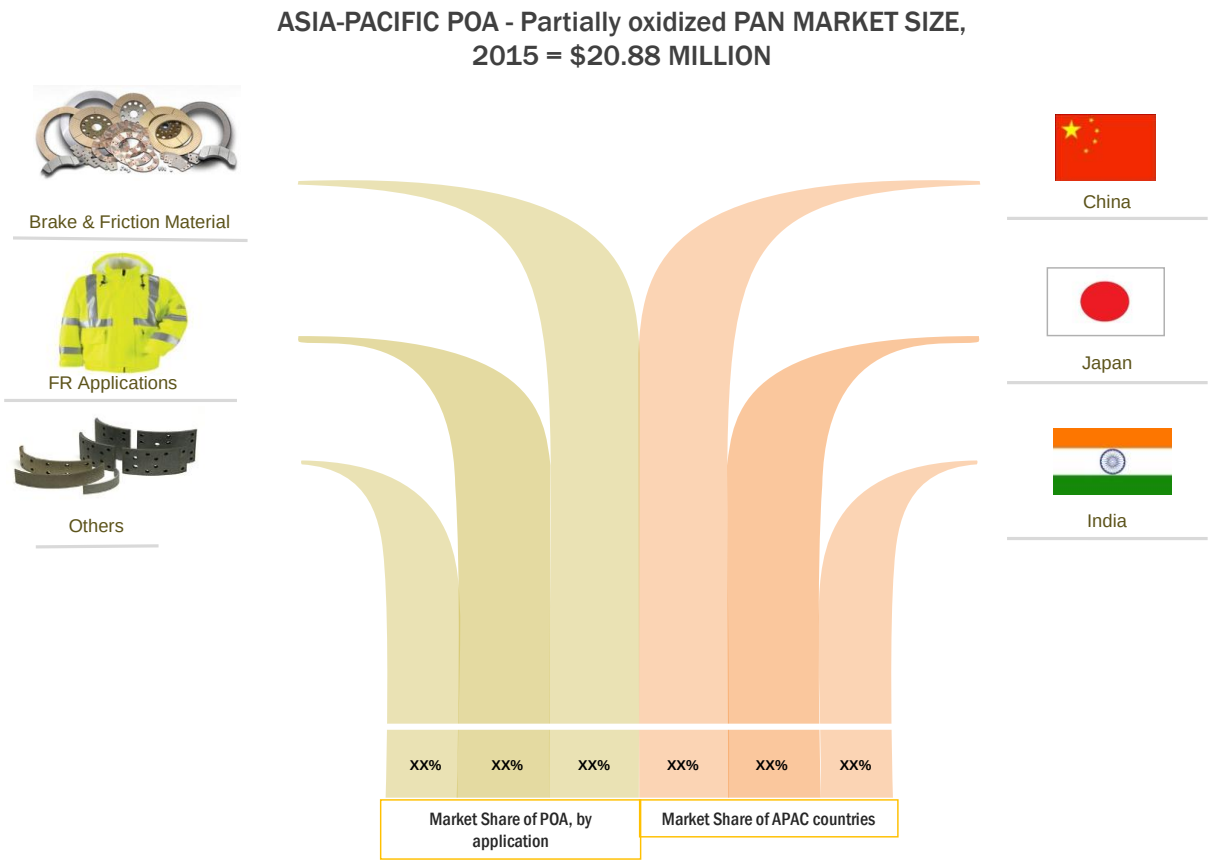
FIGURE 7 THE U.S. HELD THE LARGEST MARKET FOR PARA ARAMID FIBERS ACROSS ALL APPLICATIONS, 2015



Note: Others include tire reinforcement, rubber reinforcement, and other applications

Source: Secondary Sources, The Japan Carbon Fiber Association (JCFA), The European Glass Fiber Producers Association, Japan Chemical Fibers Association, Fiberglass World, Composites World, Bloomberg Businessweek, Factiva, Expert Interviews, and MarketsandMarkets Analysis

FIGURE 8 POA REGISTERED THE HIGHEST MARKET SHARE IN CHINA, 2015



Note: Others include industrial applications

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