



Worldwide Supplier of Glass Fiber Yarns, Reinforcements and High Performance Materials

www.agy.com

# Vision

To be the high performance materials solution of choice for end users, designers, and specifiers worldwide.

## about agy



## **History of AGY**

It is no exaggeration to say that AGY is descended from the very pioneers in the glass fiber business; our predecessors were the inventive people who developed the commercial processes for making glass fibers. These pioneers literally developed the markets we participate in today.

### **Products**

The S-2 Glass<sup>®</sup> fibers that these pioneers developed have become the standard for highstrength, high-performance glass fibers used in a variety of applications in the aerospace, marine, recreation, and defense markets. Currently, in the defense sector, S-2 Glass<sup>®</sup> fibers are being used to uparmor door panels in the Humvee vehicle, providing a unique value-added solution to a pressing need.

AGY pioneers developed a variety of applications for BETA® yarn including architectural fabrics for some of the most striking buildings in the world. BETA® yarn coated with PTFE provides a unique and durable solution in applications where a flexible roofing structure is part of the design equation. Applications include the Denver, Colorado Airport, the Millennium Dome in London, England and the Haj Terminal in Riyadh, Saudi Arabia.

In recent years, AGY has expanded the S-2 Glass<sup>®</sup> fiber family by developing ZenTron<sup>®</sup> and VeTron<sup>™</sup> glass rovings that are compatible with a variety of resins, including polyesters and vinyl esters.

AGY is a world leader in fine and extra-fine E-Glass yarns used in a wide variety of industries and applications from aerospace to industrial and from construction to automotive.

## Technology

Technology leadership has been the hallmark of AGY since the beginning. Despite the move of commodity yarns to Asia, customers still come to AGY for fine and extra-fine electrical yarns when they have a critical application. AGY continues to maintain its leadership role in a number of areas including the establishment of flexible manufacturing platforms that enable products to be tailored to specific customer needs.

### **Employees and Facilities**

Globally, AGY employs approximately 1,150 people in the production, sales, distribution, and

development of glass fiber yarns. Manufacturing facilities are located in Aiken, South Carolina. The world headquarters and central science and technology center are located adjacent to the manufacturing facility in Aiken. AGY has commercial and administrative offices in Europe (Lyon, France) and operates through a network of agents and distributors in Asia Pacific.

## Manufacturing Excellence With a product portfolio

developed for extreme performance, AGY has deployed a manufacturing strategy that utilizes a set of unique manufacturing platforms in order to supply tailored products for customers' demanding applications.

### AGY Employee Longevity

Over the years, AGY has maintained an excellent record of employee retention.

Our hourly employees have an average of 17 years of service, with 64% having greater than or equal to 10 years of service, and 48% having greater than or equal to 20 years of service.

Our salaried employees have an average of 16 years of service, with 59% having greater than or equal to 10 years of service, and 40% having greater than or equal to 21 years of service.

## agy business strategy

## Strength in Materials

AGY is a growing and innovative company through a focus on "Strength in Materials" the very materials that give our customers market leading performance for their products. Our Strength in Materials strategy has three components: being a materials solutions provider, having a strong customer focus, and creating a world class team.

### **Materials Solution Provider**

Being a materials solutions provider is all about developing tailored products that give our customers a competitive advantage in the marketplace. We have a unique portfolio of products that makes the materials solutions concept a reality for our customers. At AGY, we differentiate our products along three major axes, Glass Chemistry, Coating Technology and Product Form. We offer a number of unique features including small flexible manufacturing platforms, tailored sizings to improve application performance, and forming and fabrication process know-how to improve quality and performance.



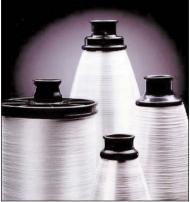


#### **Customer Focus**

As one of the world's few independent glass fiber producers with a proven track record, our goal is to delight our customers through a commitment to product quality and innovation, delivering enhanced process technology, new product development, and customer technical service.

## **World Class Team**

AGY has assembled a world class team of employees who bring many years experience to the development and production of fiberglass yarns and high performance materials.



## growth and innovation

## Growth

### **Sales and Marketing**

AGY has a six-point plan for growth:

- Develop new and improved added-value products for S-2 Glass<sup>®</sup> fibers, BETA<sup>®</sup> yarn and other specialty glasses.
- Maintain an aggressive, dedicated new business development team focused on application development by market.
- Focus on key strategic applications that will yield the most revenue and business impact.
- 4. Create and develop strategic alliances to expedite growth throughout the application value chain.
- Manage core business at direct customer level with a tactically focused sales team to manage relationships and facilitate core application growth.
- Drive AGY product brand awareness at the design engineer and specifier level through targeted promotion.

### "First-to-Market" Strategy

AGY has a "First-to-Market" strategy where we believe that the market will define our future products. In order to capitalize on this philosophy, the AGY strategy is to separate growth activity from core business



management. By doing this, AGY has been able to develop a dynamic new business development pipeline and to allocate resources to focus on closing new opportunities rapidly.



## Innovation

Our Science and Technology department is responsible for creating technology platforms, developing new products, improving current products and providing technical support to customers and to our manufacturing operations.

AGY's innovation speaks for itself. Our S-2 Glass® products are the leaders in specialty high-strength glass. We offer sizings that have been customized for electrical applications, epoxy and vinyl-ester reinforcement, vinyl coatings, etc. We have modular melting and fiberizing technology that enables us to make specialty fibers in as small a volume as one bushing. We have a well-established and successful history of developing applications such as electronics and ballistics. We utilize an Idea-to-Profit project portfolio management process to ensure that scarce resources are focused on business priorities. Finally, our customers tell us that AGY has the best technical service in the industry.

AGY is the sole producer of S-2 Glass<sup>®</sup> fiber.

## agy products



## **E-Glass Products**

E-Glass yarn is a natural, lustrous, white, continuous filament yarn, which is evenly twisted on supply packages. The yarns are made of glass of high stability and durability and are, with the exception of sizing ingredients, inorganic, incombustible and will neither expand nor contract with moisture changes. These yarns are valued as general purpose fibers where strength and high electrical resistivity are required.

E-Glass yarns are available with a wide variety of starch/oil and resin compatible direct sizing, tailored for specific applications, process, and product requirements. Types of yarn include:

- **CONTINUOUS FILAMENT YARNS**
- TEXTURIZED YARNS
- **> PLIED YARNS**
- **BEAMED YARNS**
- **WOUND YARNS**
- **CHOPPED YARNS**

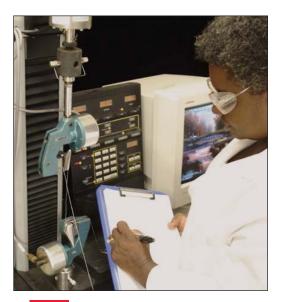
## S-2 Glass<sup>®</sup> Products

S-2 Glass® products are high strength glass fiber products that provide a higher level of performance than traditional E-Glass products. Produced with a higher level of silica than standard glass fiber products, S-2 Glass® fibers offer enhanced physical properties including:

- High Strength-to-Weight Ratio
- Superior Dimensional Stability
- Excellent Heat Resistance
- Outstanding Moisture Resistance
- Exceptional Chemical Resistance
- Outstanding Electrical Performance
- Great Thermal Conductivity
- Wide Resin Compatibility
- Flexible Processability

S-2 Glass® fiber has been selected and qualified over other fiber materials for demanding applications such as helicopter blades, aircraft flooring and interiors, vehicle and vessel armor protection, fireman and scuba bottles, and high-strength timing belts. S-2 Glass® products are available in the following formulations:

- **CONTINUOUS FILAMENT**
- MULTI-END ROVING
- ► ZENTRON® ROVING
- > 401 S-2 GLASS® CHOPPED STRANDS





## agy markets and applications

AGY products are utilized in a variety of different applications due to their unique chemical and physical properties. The key end-use markets for AGY's broad range of products include aerospace, defense, electronics, industrial, construction, automotive and recreation, consumer and marine.

#### Aerospace

Many critical products used in the aerospace market use fiberglass when strength, dimensional stability, corrosion resistance, weight and cost performance are considered. Both E-Glass and S-2 Glass<sup>®</sup> fiber reinforcements offer unique reinforcement properties,



including strength, fiber toughness, tensile and compressive modulus and impact deformation that are critical to high performance aerospace applications. Glass fiber reinforcements

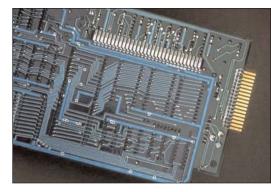
perform well across a wide variety of resin systems that are used in the aerospace market.

the high tensile and compressive strengths of S-2 Glass<sup>®</sup> fibers. The fiber's high ultimate elongation plays an important role in the dynamic ballistic impact-absorbing mechanism. Structural performance, protection against fire and smoke, and reduced costs without sacrificing ballistic performance are key factors considered in the defense market.

### **Electronics**

AGY produces fine yarn glass for multi-layer and rigid circuit boards used in the electronics industry. Printed circuit boards are integral to virtually all advanced electronics products including computers,

telecommunications equipment, medical equipment, aircraft systems, automotive equipment and home appliances. The long-term trend of miniaturization and increased use of electronics in commercial and



consumer products will fuel growth in this sector.

#### Defense



High performance fiberglass offers outstanding ballistic protection and structural performance for hard composite armor applications due to





## Industrial

AGY produces a wide variety of glass yarn products for use in the industrial market, including filtration bags, thermal insulation, welding curtains, filament tape, wire insulation, gaskets, conveyor belts, movie screens, electrical insulation products and reinforced tapes.

As a demonstrated leader in the Industrial market, AGY's vision for market growth is to diversify its application base from mattress fire protection to power cables to compressed natural gas pressure vessels to offshore pipe casing.

#### Automotive

Glass fiber adds value in several automotive and truck applications especially as automotive systems rely on glass fiber yarns, often in harsh under-the-hood environments.



Applications include: muffler fill, gaskets, timing belts, ignition cables, electronics, battery retainers and separators.

### Construction

AGY has a variety of glass yarn applications within the construction market including: roofing materials, cement board reinforcements, insect screening, wall covering, solar



sun shades, wallboard tape and tile backing board.

Higher-margin construction applications include the company's BETA® yarn materials used in flexible roofing structures (based on the BETA® yarn technology) which require significantly higher strength-to-weight ratios than many other construction product applications, and insect screening which requires not only good tensile strength and weatherability but also a high degree of unique properties to ensure compatibility with customers' processes. The AGY vision for construction market growth is to create new ideas that challenge existing industry processes and attitudes in this mature business.



Recreation, Consumer and Marine Glass fiber is a key component used in the recreational and consumer market when strength, reduced weight, flexibility, dimensional stability and corrosion resistance is needed. Glass fiber is also used for high performance polymer composites as well as ceramic and metal matrix composites.

# agy future

## **Sustainable Growth**

## Strategy

Our strategy for capitalizing on growth opportunities focuses on three main areas:

- Glass Chemistry where our unique technology approach and custom manufacturing platforms support our ability to develop custom solutions for each application.
- Coating Technology to optimize the performance of our products in final end-use applications.
- Tailoring the Product Form to specific application needs will improve our customers' manufacturing ability and improve final product performance.

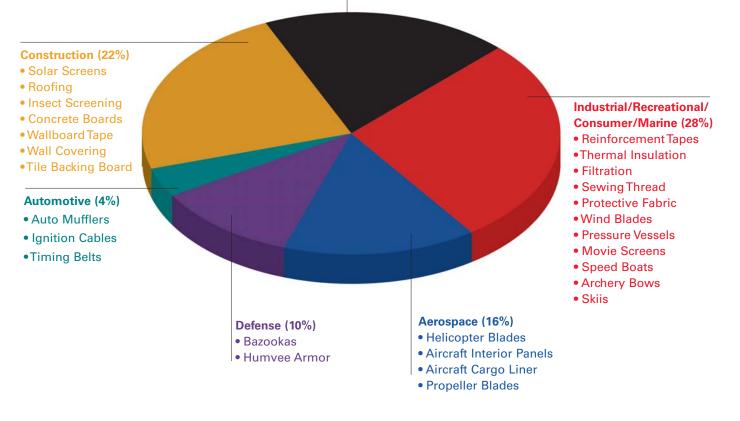


Within each of these markets is a broad range of applications with AGY product specifications at the end user level. AGY believes that this diversification reduces the volatility in demand for our products and reduces the risk of loss from any single product, market or geographical sales region.

## Diversified Markets... Diversified Applications

Electronics (20%) • Printed Circuit Boards

Cable Insulation



# **Sustainable Growth**

AGY is a product technology leader with a stable customer base, flexible manufacturing, diverse and attractive markets, and a strong growth and innovation new business portfolio for the future.



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