Composites: String and Glue Make Interesting Everyday Structures

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In the days of the Egyptians composites were the mud bricks made from straw (‘string’) and mud (‘glue’). Fiber-reinforced composites today are manufactured with glass-, aramid-, carbon-, graphite-, Boron-, natural fibers – and a number of many other fibers. These fibers are quite often smaller than a human hair but provide strength and stiffness many times that of traditional steel. Polymeric composite structures cover a wide swath across the aerospace, industrial and consumer market segments as will be discussed in the presentation. While composites often are becoming well known in the aerospace market applications due to their high strength, high stiffness and light weight, other market applications have expanded in the past 40-50 years. Sporting goods, recreational products, wind energy turbine blades, flywheels, medical applications, high performance sailboats, racing cars, building infrastructure, bridge decks, and many other applications have become common. The automotive industry, faced with stringent CAFÉ mileage regulations may soon take as much as 50-75 percent of the carbon fiber supply in order to achieve set fuel efficiency requirements. Manufacturing of composite structures is rapidly looking at developing more “automated processing techniques” and “rapid cure or snap cure resin systems” (30-120 seconds) in order to meet high production volumes demanded. This presentation is intended to show a number of examples of composites which are being made into unique shapes and in very complex geometries. Growth in the aerospace, energy and alternative energy, automotive, consumer and infrastructure markets continue to grow significantly each year. The presentation is intended to show numerous examples of such structures across the various market segments. The available PowerPoint presentation will also provide some market growth statistics as well.

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