

Toray is the recognized leader in carbon fiber and thermoset and thermoplastic prepreg solutions for diverse applications. For over five decades, Toray's advanced composite materials have been an integral component of critical military and missile defense applications to improve payload carrying capacity and increase range. Additionally, our technology has consistently met stringent requirements of defense programs where high strength, high impact damage resistance, heat resistance, or electromagnetic transparency are needed.

CORE COMPETENCIES

- TORAYCA™ polyacrylonitrile (PAN) - based carbon fiber
- Thermoset and Cetex® thermoplastic prepreg materials offered in various widths and formats (unidirectional and fabric)
- High temperature cyanate ester, bismaleimide, and polyimide resins
- AmberTool® composite tooling prepreg
- Ancillary composite materials including peel ply, film adhesives, syntactics, tackifiers, and tackifier film

DIFFERENTIATORS

- Providing high-performance composite material solutions to aerospace and defense companies for over five decades
- TORAYCA™ carbon fibers represent the widest range of strength and stiffness in the market
- Offers prepregs that are qualified to industry AMS specifications with publicly available design data
- Low dielectric materials manufactured in carbon-free facilities
- Vertically-integrated supply chain with high-volume carbon fiber and prepreg manufacturing
- Largest capacity of any carbon fiber or prepreg manufacturer in North America
- Global team of application engineers specializing in aerospace and defense applications to support programs from custom material selection, to development and qualification process

CAPABILITIES

- Toughened and impact resistant material solutions for missiles and munitions, rotor systems, and primary aerostructures.
- Composite materials optimized for hand layup, automated tape laying (ATL), and advanced fiber placement (AFP)
- Compatible with traditional autoclave and out-of-autoclave cure profiles for launch vehicles, military aircraft, UAVs, and helicopters
- High temperature composite materials for advanced structural, ablative, and carbon-carbon composite applications

CERTIFICATIONS

ISO 14001:2015
AS9100
Nadcap AC7124/5 Rev A
Nadcap AC7124/2 Rev A
Nadcap AC7124/6
Nadcap AC7122(1-5) rev D

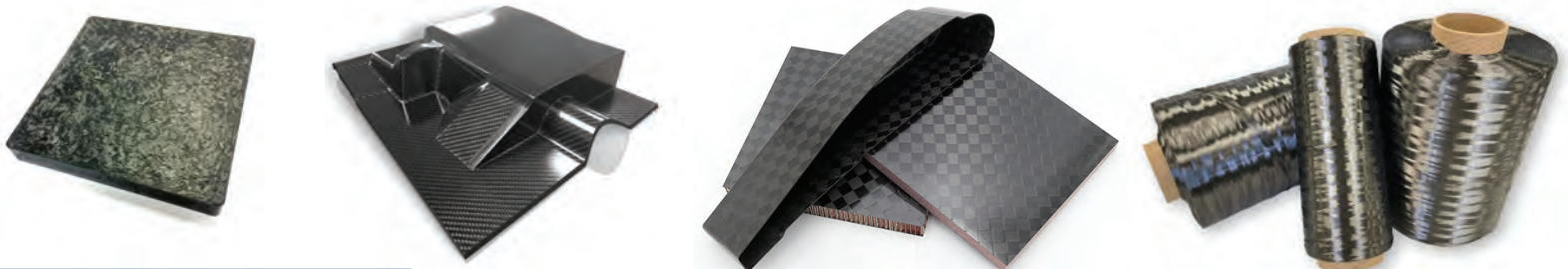
QUALITY SYSTEMS

Boeing D6-82479
Boeing D1-4426

CODES

DUNS:
809831308 (CMA)
623134715 (TAC)
Cage Code:
082T8 (CMA)
02SW6 (TAC)
NAICS Code: 325211

ITAR Compliant



TORAYCA™ CARBON FIBER

STANDARD MODULUS FIBERS

Fibers exhibit a modulus of 33-34 Msi or slightly higher. These are the most cost-effective fibers by tensile strength per unit cost. Standard modulus fibers are offered in 1K to 24K tow size.

INTERMEDIATE MODULUS FIBERS

Intermediate modulus (IM) and intermediate modulus plus (IM+) carbon fibers exhibit a tensile modulus of 42 to 47 Msi. They can be used in aerospace, recreational and industrial applications. Available in 6K, 12K, and 24K tow size.

HIGH MODULUS FIBERS

Toray's high-modulus fibers represent the highest PAN-based carbon fiber properties available. Tensile modulus of these fibers range from 49 Msi to 85 Msi and are available in 3K, 6K, and 12K tow size.

THERMOSET MATERIALS

EPOXY

Toughened prepreg systems provide excellent all-around structural properties. These are formulated for a variety of processing methods, with hot-wet operating temperatures up to mid-300°F (149°C). These are used extensively across all market sectors – from aerospace to industrial applications.

CYANATE ESTER

These systems deliver high temperature resistance with low moisture absorption, ideal properties for satellite structures, heat shields, ablatives and carbon-carbon structures. Cyanate esters also exhibit low dielectric properties ideal for radomes.

BMI

Prepreg system with enhanced strength and toughness designed to provide high temperature resistance up to 450°F (232°C). This prepreg system maintains handling and flow characteristics similar to epoxy prepregs. System uses include military applications, missiles, and composite engine nacelles.

HIGH TEMPERATURE POLYIMIDE

Ultra-high temperature prepreg systems perform well in extreme operating temperatures in excess of 260-371°C (500-700°F). Typical polyimide-based prepreg uses include military jet engine components, heat shields, ablatives and carbon-carbon structures.

THERMOPLASTIC MATERIALS

TORAY CETEX®

Thermoplastic advanced lightweight materials qualified to major aircraft manufacturers' structural specifications with proven resistance to extreme conditions and environments. Ideal for high-volume manufacturing. Available in a wide range of fiber/resin combination and formats.

COMPOSITE TOOLING PREPREG

TORAY AMBERTOOL®

AmberTool® epoxy and BMI-based tooling prepregs cure at low initial temperatures followed by a freestanding post cure, allowing the use of low temperature master materials, and resulting in production of high quality composite tooling. This tooling prepreg exhibits excellent tack, drape and handling characteristics. Tooling series includes HX, HXR, and TC series.

ANCILLARY MATERIALS

Film Adhesives
Surfacing Films
Syntactics
Lightning Strike Solutions

Tackifiers
Same Qualified Resin Transfer Molding (SQRTM)
Peel Ply