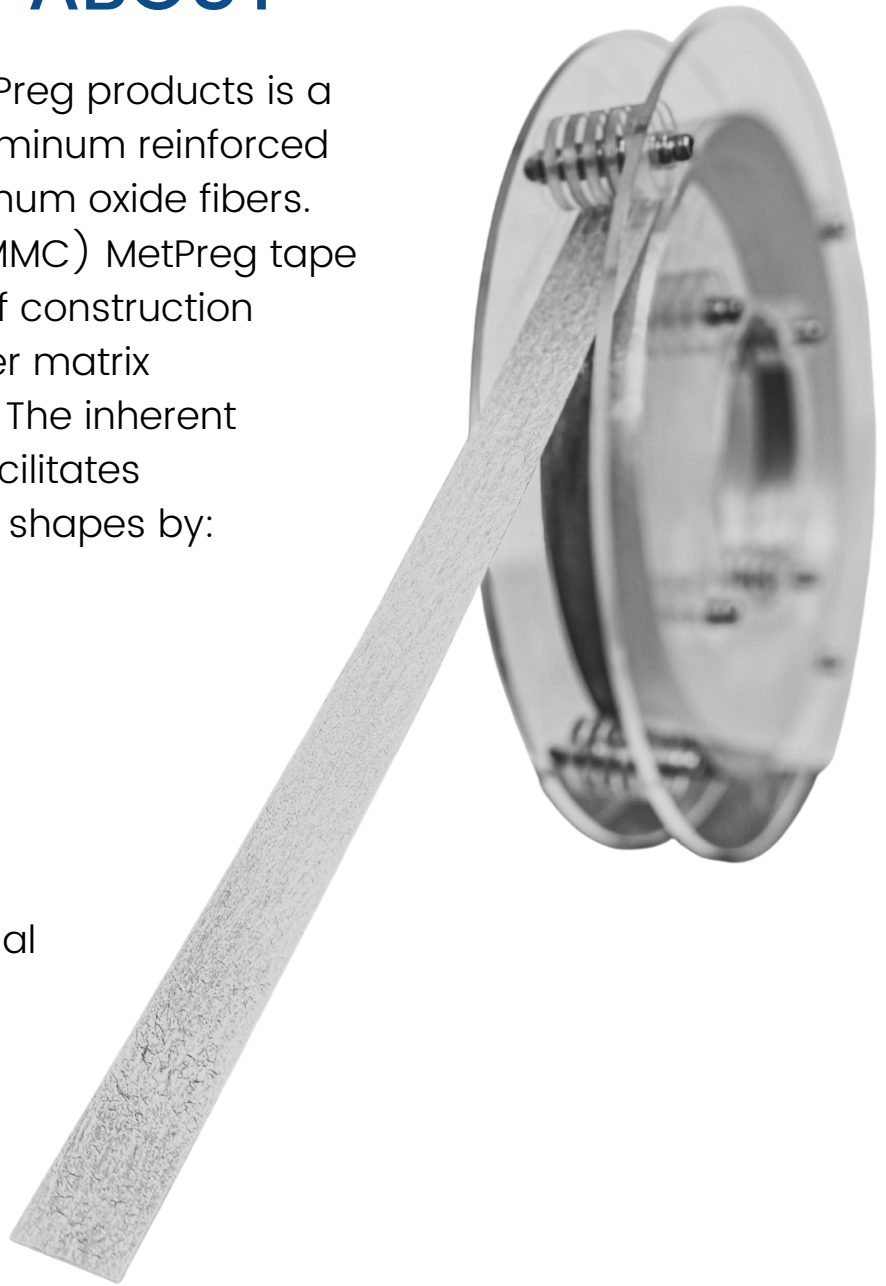


ABOUT

The basic building block of MetPreg products is a continuous strip or "tape" of aluminum reinforced by continuous strands of aluminum oxide fibers. This metal matrix composite (MMC) MetPreg tape is analogous to prepreg units of construction commonly employed in polymer matrix composite (PMC) fabrications. The inherent flexibility of flat MetPreg tape facilitates producing simple and complex shapes by:

- Hand lay-up
- Filament winding
- Tape placement
- Hot pressing

MetPreg tapes far exceed monolithic aluminum longitudinal tensile and compressive strengths, thereby providing an efficient option to structural engineers and designers interested in components to exhibit high specific strengths and elastic moduli.



Touchstone Research Laboratory, Ltd. is now providing MetPreg tape in multiple sizes so that composite part designers, fabricators and system integrators can apply MetPreg to in-house projects.



Sizes

MetPreg tape is available in off-the-shelf sizes as follows:

Tape Width: 3/8-inch, 1/2-inch, 1-inch (9.5mm, 12.7mm, 25.4mm), and others available upon request

Tape Thickness: 0.020-inch (0.51 mm) and others available upon request

Tape Length: Continuous strips to 1000 feet

Ask us about other shapes!

Typical Properties

	Metric	Imperial
Bulk Density	3.30 g/cm ³	.12 lbs/in ³
Max. Use Temperature	538° C*	1000° F*
Tensile Strength	1450 MPa	210 ksi
Tensile Modulus	227 GPa	33 Msi
Tensile Strain to Failure	0.7%	0.7%
Compressive Strength	2070 MPa	300 ksi

*Temperature at which tensile strength is 80% of room temperature tensile strength

Features

- Lightweight and strong: Three-times the strength and stiffness of structural aluminum alloys
- MetPreg tape can be thermally formed and set to a desired geometry
- Can be welded, soldered, brazed and bonded with structural adhesives
- Maintains 80% of its room temperature longitudinal tensile strength to greater than 1000°F
- Field repairs are possible with soldering and brazing equipment
- Permeability of H₂ through the aluminum matrix is negligible
- Compatible with liquid O₂ and some propellant chemistries
- Does not microcrack at cryogenic temperatures
- Does not outgas under vacuum
- Properties are unaffected by high humidity
- UV exposure causes no degradation of tape
- Electrically conductive - no static charging
- Can be handled in processing steps similar to polymer composites
- Coefficient of thermal expansion is approximately half that of aluminum
- Integral flanges and end closures for vessels can be made of MetPreg to minimize thermal stresses during cycling
- Remained impermeable to He after 100 cycles between -450°F and 250°F