

HARD ARMOR



Barrday is a leading advanced material provider for the protective and composite markets.

We offer an extensive range of high performance solutions for hard armor applications in the ground vehicle, marine, aerospace, helmet and plate markets. Our solutions are developed to provide the best possible survivability solution based on your requirements for specific protection levels, total solution weight and cost. In addition to custom solutions, we offer standard material solutions that meet existing military specifications.



GROUND-AIR-MARINE VEHICLE

Barrday supplies a broad array of composite materials for ground vehicle, marine and aerospace up-armorings based on our proprietary thermoset and thermoplastic resin systems. These materials range from aramid and glass-based mil-spec prepreg for spall liners to aramid and ultra high molecular weight polyethylene uni-directional products for seat, cockpit and floor armor.

HELMETS

We are a leading material supplier for military, commercial and law enforcement helmet programs. Our broad offering of fabric and uni-directional products based on phenolic, epoxy and thermoplastic resin systems covers the full spectrum of value/performance requirements in both monolithic and hybrid helmet designs.

PLATES AND SHIELDS

Our growing portfolio of aramid and ultra high molecular weight polyethylene uni-directional products for monolithic plates and shields are designed to meet the full range of NIJ standards. In addition, we offer cost-effective fabric prepreg for plate backing applications to minimize back-face deformation and improve trauma protection.



BARRDAY MATERIALS FOR HARD ARMOR APPLICATIONS



	END-MARKET APPLICATION	AVAILABLE FORMATS & REINFORCEMENT		RESIN MATRIX	PROCESSING TEMP °F (°C)	FEATURES/BENEFITS
UNIDIRECTIONAL MATERIALS						
UP771	Helmets Vehicle Plates	4-ply UD	UHMWPE	Thermoplastic	260°F (127°C)	Excellent rigidity and toughness.
U471	Plates	2-ply UD	Aramid		275°F (135°C)	Rigid, high temperature performance resin. Good tile reinforcement.
U681						Rigid, high temperature performance resin. High strength fiber reinforcement.
U561 U531	Vehicle	4-ply UD	Good performance against deformable projectiles.			
THERMOSET SYSTEMS						
PSR814	Helmets	UD/Fabric Prepreg	Aramid: 1023 (850d PW) 1013 (3000d PW) 1117 (3000d BW) Glass: 1136 (WR) 7781 (E-glass) 6781 (S2-glass) Carbon: 1041 (3k PW) 1144 (3k 2x2T) 12k UD Spectra: 1255 (900d 2x2T) 1036 (900d PW)	PVB Phenolic	230-280°F (121 – 137°C)	High strength, rigid system. Low temp and fast curing (20 min) system.
LC815		Film				Toughened system. Low temp and fast curing (20 min) system. Green pigmented option.
LC799	Helmets Vehicle	Fabric Prepreg			310 – 325°F (155 – 163°C)	High performance system. Green pigmented standard, clear resin option.
LC818	Vehicle			Low cost system. Meets MIL-DTL-62474F.		
PSR133	Vehicle			Neat Phenolic	320 – 325°F (154 – 163°C)	Excellent chemical, fire and heat resistance. Meets MIL-DTL-64154B. Low cost.
EPM105	Plates			Toughened Epoxy	250°F (120°C)	High performance system.
EP200HT	Plates			Epoxy	200 – 210°F (93 – 99°C)	Low temperature system. Good for co-molding with polyethylene materials.
EPM301	Helmets Plates					275°F (135°C)
LC310	Plates Vehicle			Polyester	275 – 320°F (135 – 160°C)	Low cost, easy molding system under a wide range of pressures.
VE	Helmets			Vinyl Ester	200 - 260°F (93 – 127°C)	Easy processing, low cost, tough, fast-curing (20 min) system. Black pigmented option.
NE9	Vehicle	Neoprene	260 – 380°F (127 – 182°C)	Tough, flexible composite. Excellent spall performance.		
THERMOPLASTIC SYSTEMS						
ARG	Vehicles	Fabric Laminate	Aramid: 1013 (3000d PW)	Olefin Copolymer	305 – 315°F (152 – 157°C)	Semi-rigid, resin, system with superior ballistics. Chemically stable 500F+.
NTA	Plates		Glass: 7781 (E-glass)		270 – 320°F (132 – 160°C)	Hot melt, high flow resin, good adhesion. Fast curing (5 min) system.
CAF	Vehicles		Carbon: 1041 (3k PW)	Modified Polyethylene	285 – 320°F (141 – 160°C)	Flexible system with good ballistic performance.
T-Link™	Helmets	UD/Fabric Laminate	1044 (3k 2x2 Twill) 12k UD	Thermoplastic Epoxy	265 – 285°F (130 – 140°C)	Excellent adhesion with good structural properties and toughness.