



PLASTICS IN SPORT

Advances in facilities and sports equipment have allowed athletes to push the physical limits of the human body.

In virtually every athletic event, plastics are making major contributions to performance or safety. The durability, impact resistance, strength and light weight of plastics have made them increasingly the material of choice for athletic equipment manufacturers, coaches, and athletes.

The Plastics Division of the American Chemistry Council (ACC) has taken a closer look at contributions of plastics to athletic competition and developed this resource highlighting the many ways that plastics are helping turn athlete’s dreams into gold.

PLASTIC	PROPERTIES	SPORT
ABS (acrylonitrile-butadiene-styrene), ABS foams	Impact resistance, impact absorption in helmets and ear protection	Baseball, Softball, Shooting, Track & Field
Carbon fibers/graphite (carbon reinforced with plastic)	Strength, durability, abrasion resistance, lightweight, impact resistance, shatter resistance, stiffness in arrows, boats, bicycle frames, tennis racquets	Archery, Canoeing, Cycling, Kayaking, Rowing, Tennis
EPP (Expanded-polypropylene) foams	Impact absorption for helmet liners	Canoeing, Kayaking, Rowing
EPS (expanded polystyrene), EPU (expanded polyurethane), EPE (expanded polyethylene) foams	Impact absorption for helmets	Cycling, Equestrian, Field Hockey
EVA (ethylene-vinyl-acetate) Foam	Impact absorption in helmets, kneepads, and mouthguards	Baseball, Boxing, Field Hockey, Volleyball, Softball, Track & Field, Weightlifting
Fiberglass (glass reinforced with plastic)	Lightweight, durability, flexibility, impact resistance, abrasion resistance, shatter resistance in arrows, boats, oars, gymnastics bars, discs, and batons	Archery, Canoeing, Kayaking, Field Hockey, Gymnastics, Rowing, Sailing, Track & Field
Kevlar®	Strength, impact resistance, abrasion resistance, stiffness in boats, oars, fencing uniforms, volleyball nets, and tennis racquet strings	Archery, Canoeing, Fencing, Volleyball, Kayaking, Rowing, Sailing, Tennis
Spandex/Dorlastan®/Lycra®	Flexibility, moisture absorption, aerodynamic, comfort for clothing	Cycling, Diving, Swimming, Synchronized Swimming, Water Polo, Wrestling
Neoprene	Slip-resistance, impact absorption in wrist guards and weightlifting shoes	Gymnastics, Weightlifting
Nylon	Durability, lightweight, elasticity, strength, water-resistance in knee pads, bicycle tires, harnesses and reins, fencing uniforms, sailing ropes, tennis racquet strings,	Volleyball, Cycling, Equestrian, Fencing, Sailing, Tennis, Water Polo, Weightlifting



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Polycarbonate	Impact resistance, shatter resistance, abrasion resistance, optical clarity, durability in protective goggles and leg guards	Cycling, Diving, Field Hockey, Gymnastics, Shooting, Swimming, Synchronized Swimming, Tennis
Polyester	Durability, elasticity, strength, water resistance in volleyball nets, sailing ropes, and tennis racquet strings	Volleyball, Sailing, Tennis
Polyethylene	Impact absorption, durability, rebound in chest protectors and floor mats	Baseball, Gymnastics, Softball
Polypropylene	Impact absorption in helmets, impact resistance, strength, elasticity, water resistance in helmets, kneepads, and mouth guards	Baseball, Field Hockey, Softball, Sailing
Polyurethane	Durability, strength, rebound, impact absorption, shape retention, weather resistance in arrow fletching, football gloves, vaulting mats, volleyballs, and track surfaces	Archery, Field Hockey, Boxing, Football, Gymnastics, Volleyball, Tennis, Track & Field, Weightlifting
Polyurethane/Polymer gelcoats	Durability, weather resistance in paddles, oars, and coating for canoes, sailboats, diving boards, harnesses, and reins	Canoeing, Diving, Equestrian, Kayaking, Rowing, Sailing
PVC (poly-vinyl-chloride)	Durability, shape retention, weather resistance, comfort, watertight for goggles straps, vaulting mats, volleyball fencing, wrestling mats, pole-vault landing mats, and underwater sound systems	Boxing, Diving, Field Hockey, Football, Gymnastics, Volleyball, Swimming, Synchronized Swimming, Track & Field, Wrestling
Spectra®, Vectran®	Elasticity, strength, flexibility, water-resistance, durability for ropes and sails	Sailing
Vinyl Nitrate foams	Impact absorption (with little rebound) in wrestling mats	Wrestling